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Pacific
Northwest
Region

1995



Monitoring Report for the Land and Resource Management Plan

Wenatchee National Forest Fiscal Year 1994

WENATCHEE NATIONAL FOREST

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September 1, 1995

Dear Forest User,

The Wenatchee Forest Plan establishes general direction of all resource management activities on the Forest. It provides for forest protection and coordinated multiple-use management of outdoor recreation, range, timber, watershed, wildlife and fish, minerals, and wilderness. Its overall purpose is the sustained production of goods and services for the benefit of the American people.

Monitoring is a key part of Forest Plan implementation. This report summarizes and highlights Forest Service monitoring activities for Fiscal Year 1994 (October 1, 1993 to September 30, 1994). This is our fifth Forest Plan monitoring and evaluation report.

On April 13, 1994 the Secretary of Agriculture and the Secretary of Interior signed the Record of Decision for Amendments to the Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. The Record of Decision (also know as the President's Forest Plan) amended the Wenatchee Forest Plan. The Record of Decision developed new land allocation for the Forest which significantly changed management direction on these lands. These new allocations are Late Successional Reserves, Adaptive Management Areas, Managed Late-Successional Areas, Riparian Reserves, and Matrix. For these areas the Standards and Guidelines for the Wenatchee National Forest were substantially modified. Whenever the 'Forest Plan' is mentioned in this document it refers to the Wenatchee Forest Plan as amended by the April 13, 1994 Record of Decision.

The summer of 1994 brought severe fire activity to the Wenatchee National Forest. Forest personnel from all resources were involved with the suppression effort during the season. Later, many were also involved in emergency rehabilitation efforts. This resulted in many monitoring activities being delayed. Therefore, many monitoring items and recommendations from last year's report may be addressed again this year.

As Wenatchee Forest Supervisor, I am responsible for ensuring that all Forest management activities comply with the Forest Plan Standards and Guidelines and Management Area Prescriptions. The monitoring and evaluation program tells us how we are doing in implementing the promises made in the Plan. To keep you informed, I have prepared this annual "Monitoring Report" which describes progress made in implementing the Forest Plan as reflected by monitoring and evaluation.

If you have questions, concerns, or comments regarding information in this report, the addresses and phone numbers of our Ranger Districts and Supervisor's Office are located inside the cover of this document. I hope you will continue to be involved with the management of your Wenatchee National Forest.

Sincerely,

A handwritten signature in dark ink that reads "Sonny J. O'Neal".

Sonny J. O'Neal
Forest Supervisor

F I S C A L Y E A R

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MONITORING REPORT

LAND AND RESOURCE MANAGEMENT PLAN

**W E N A T C H E E
N A T I O N A L F O R E S T**

W A S H I N G T O N

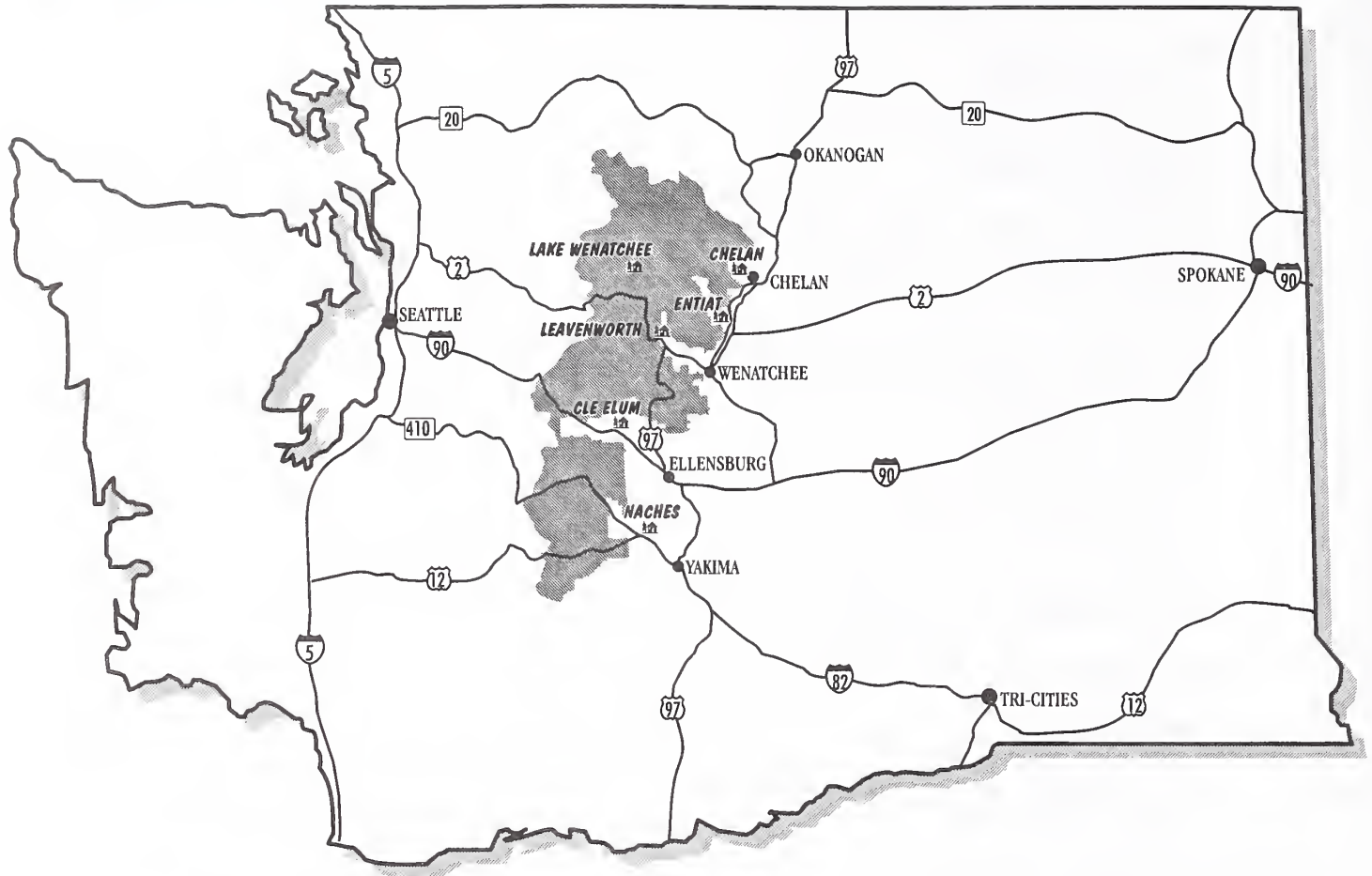


SEPTEMBER 1995

Contents

I. INTRODUCTION	1
PURPOSE OF THE MONITORING REPORT	1
GENERAL INFORMATION	1
FIRE SEASON OF 1994	2
BURNED AREA EMERGENCY REHABILITATION (BAER)	3
II. SUMMARY OF THE RECOMMENDED ACTIONS	5
RECOMMENDATIONS	7
RECREATION	7
WILD, SCENIC, AND RECREATION RIVERS	8
SCENERY MANAGEMENT	8
WILDERNESS	9
CULTURAL RESOURCES (HERITAGE RESOURCES)	9
COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES	9
SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH	10
WILDLIFE	10
TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES	13
SOIL, WATER, FISHERIES AND RELATED WATERSHED MANAGEMENT	13
RANGE MANAGEMENT	15
ROAD MANAGEMENT	15
INSECT AND DISEASE	15
FOREST FIRE PROTECTION	16
AIR RESOURCE MANAGEMENT	16
MINERALS	16
COMMUNITY EFFECTS AND RESOURCE BUDGETS	16
GENERAL MONITORING OF STANDARDS & GUIDELINES	16
III. ACTIONS TAKEN ON 1993 RECOMMENDATIONS	17
RECREATION	17
WILDERNESS	18
SCENERY MANAGEMENT	18
CULTURAL RESOURCES (HERITAGE RESOURCES)	19
FOREST FIRE PROTECTION	19
IV. INDIVIDUAL MONITORING ITEMS	20
RECREATION	20
WILD, SCENIC AND RECREATIONAL RIVERS	25
SCENERY MANAGEMENT	26
WILDERNESS	29
CULTURAL RESOURCES (HERITAGE RESOURCES)	31
COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES	38
SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH	39
WILDLIFE	42
TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES	54
SOIL, WATER, FISHERIES AND RELATED WATERSHED MANAGEMENT	58
RANGE MANAGEMENT AND RELATED ACTIVITIES	71
ROAD MANAGEMENT	73
INSECT AND DISEASE	76
FOREST FIRE PROTECTION	77
AIR RESOURCE MANAGEMENT	80
MINERALS	82
COMMUNITY EFFECTS AND RESOURCE BUDGETS	84
GENERAL MONITORING OF STANDARDS AND GUIDELINES	93
V. FOREST PLANNING UPDATE	94
Forest Plan Appeals	94
Forest Plan Litigation	94
Forest Plan Amendments	94

WENATCHEE NATIONAL FOREST



W A S H I N G T O N

I. INTRODUCTION

A. PURPOSE OF THE MONITORING REPORT

The Wenatchee Forest Plan was implemented in 1990 after ten years of analysis and extensive public review and comment. The Forest Plan meets requirements of The National Forest Management Act of 1976. It provides standards, guidelines, land allocations, and philosophy which serve as the basis for all Forest Service management on the 2.2 million acre Wenatchee National Forest.

The purpose of this annual report is to provide information to the Regional Forester, Forest Leadership Team, and the public on how well the Forest Plan objectives are being met. At the five-year point, a detailed evaluation report will be submitted with recommended actions for the Forest Supervisor's consideration. The monitoring and evaluation process will provide information to determine if:

- laws, regulations, and policies are being followed, including those found in the Forest Plan Management Area Prescriptions, and Forest-wide Standards and Guidelines, the Regional Guide, and Forest Service Handbooks.
- the management prescriptions are producing the predicted Goals and Objectives or Desired Future Conditions of the Forest environment.
- cost and annual budgets of implementing the Plan are within projected limits.
- the projected range of outputs is being produced. It will also evaluate effects.

A number of monitoring systems are already in place to comply with administrative and legal responsibilities. Monitoring does not replace these systems, but rather complements them by addressing specific issues and concerns identified through the planning process.

B. GENERAL INFORMATION

Monitoring consists of gathering data, making observations, and collecting and disclosing information. Monitoring is also the means to determine how well objectives of the Plan are being met, and how appropriate the management Standards and Guidelines are for meeting the projected Forest outputs and protecting the environment. Monitoring is used to determine how well assumptions used in development of the Forest Plan reflect actual conditions.

Monitoring and evaluation may lead to changes in practices or provide a basis for adjustments, amendments, or Plan revisions. Monitoring is intended to keep the Forest Plan dynamic and responsive to change and new information.

The Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl

was released in April 1994. This document contains the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl.

The Record of Decision (with its Standards and Guidelines) amends existing Forest Service and BLM management plans. The Plan identifies additional monitoring items and required discussion items. The individual monitoring items reported in this document reflect the results of this new decision.

C. FIRE SEASON OF 1994

The 1994 fire season reprioritized many efforts of Forest Service employees and many jobs were adjusted in order to meet the demands of fire suppression. During the 1994 season there were 180 fires started on the Wenatchee National Forest. Forest Service personnel, crews and/or equipment also assisted landowners and agencies on another 54 local fire dispatches, and an additional 108 fire dispatches elsewhere in Washington State and throughout the rest of the Country. All employees of the Wenatchee National Forest felt the effects of the heavy demand of the 1994 fire season.

Locally the fire season was devastating. After years of drought and on the heels of record-breaking summer temperatures, the summer of 1994 became the worst fire season in the history of the Wenatchee National Forest. Fire suppression efforts contained 110 of the 180 fires started at less than 1/4 acre and an additional 55 fires at less than 10 acres. These two statistical categories consumed a total of 89 acres. Three of the remaining 15 fires consumed 137,791 acres of the years total 157,841 acres (the fires also burned across another 30,000 acres of State and private lands). These last three incidents were the Tyee, Hatchery/Rat and Round Mountain fire complexes.

These fires originated from a storm that moved through Central Washington igniting more than 40 fires on the Wenatchee National Forest and a total of 99 fires throughout Washington State. Nationally, personnel and equipment were already committed to earlier fires. Local available resources were exhausted by initial attack efforts to contain all these fires throughout the Forest. With a depleted pool of firefighters and firefighting equipment, the extreme fire conditions of Tyee, Hatchery/Rat and Round Mountain fires defied suppression efforts for weeks.

As the fires grew, and resources became available, the firefighting efforts intensified. Firefighters and equipment from all agencies, County, State and Federal combined to combat these fires. An Area Unified Command was soon established to utilize all available firefighting resources. All three of these fire complexes threatened the Forest-Urban interface. Numerous homes and structures were threatened and soon local structural fire departments were overwhelmed. Washington State Governor Lowery invoked the State Emergency Mobilization Act which allowed for

the participation and reimbursement of firefighters and structural protection equipment from other municipalities throughout the State of Washington. The combined effort of the structural firefighting departments along the Forest-Urban interface resulted in saving 492 structures (homes, outbuildings, etc.) out of 605 that were threatened.

At the peak of the fire suppression efforts there were over 8,000 personnel representing a variety of Federal, State, County and local governments involved in the Unified Command. Firefighters from 25 states fought fire in these three complexes. Retardant planes dropped 536,916 gallons of retardant during the suppression effort. When the smoke cleared over \$71 million was spent on the suppression effort.

D. BURNED AREA EMERGENCY REHABILITATION (BAER)

Before the ashes had time to cool, specialists and technicians began inventorying damage and collecting data for the rehabilitation effort. The Unified Command organization was assembled to deal with the massive rehabilitation efforts. The Unified Command included Chelan County, USDA Forest Service, USDA National Resource Conservation Service (SCS), Washington State Department of Natural Resources, Washington State Department of Fish and Wildlife, and USDI Bureau of Land Management. The intent of this team was to facilitate the implementation of rehabilitation treatments to protect life and property, prevent erosion and possible flooding, and address other potential problems affecting natural resources. The Washington Department of Transportation and National Weather Service were also involved in special studies with the Wenatchee National Forest.

The burned area contained a complex land ownership pattern. The use of the interagency team allowed for a more efficient planning and implementation effort for rehabilitating the fire area. A number of projects were completed via interagency cooperation. For example, all the seeding/fertilization treatments were implemented from three contracts with all the agencies cost sharing based upon acres treated. This was a tremendous cost saving effort, as well as being very effective in treating all lands. This level of cooperation enabled the rehabilitation effort to be very efficient.

Stabilizing the burned area was necessary to preserve the soil for forest revegetation, for protection from mud and debris slides, and excessive flooding of private homes and property located in the valleys below. Both the steep topography and experience from the Dinkleman fire (1988) demonstrated the need to take immediate actions to stabilize the burned area.

At least 70 watersheds were affected by the wildfires. The BAER survey teams began by evaluating and mapping burn intensity. Other field surveys evaluated the fire effects on stream channels, roads, private landowners, flooding, wildlife, and cultural resources. These surveys enabled the BAER survey team to complete

Biological Evaluations for threatened and endangered species, cultural resource reports, and hydrologic project approvals. These evaluations were critical in the approval to schedule emergency rehabilitation treatments.

Aerial seeding/fertilization: The objective of the seed/fertilization treatment was to provide immediate cover in moderate and high intensity burn areas. The seed and fertilization mixes were developed by a group of interagency plant biologists and ecologists. Approximately 83,630 acres of National Forest lands were seeded and 66,559 acres were fertilized under three contracts.

Log terracing: The objectives of log terracing were to provide immediate slope treatment to reduce accelerated runoff, collect runoff, and reduce sediment delivery in high intensity burn areas that pose a risk of flooding. Approximately 14,785 acres were treated.

Large check dams: The objectives of large check dams were to prevent channel downcutting, trap sediment in upper ephemeral channels, and reduce sediment delivery to critical downstream reaches.

Small check dams: The objectives for small check dams were the same as the large check dams, except these smaller structures were installed in ephemeral drainages with slopes less than ten percent. The dams were built of log, rock, straw bales, and fabric fencing.

Roads and trails treatments: The objectives of the road treatments were to improve drainage and armor drainage structures to reduce accelerated erosion/sedimentation as a result of fire effects.

Other emergency actions: Two special projects were partially funded by BAER funding. The first project was an alert early warning weather system to forecast weather patterns that could create flooding. This will provide real time information on weather conditions within the burned area and storm tracks affecting the area. This was a cooperative venture between Chelan County, Forest Service, and the National Weather Service. The second project was a slope stability assessment in cooperation with the Washington Department of Transportation. The Intermountain Research Station was supervising this slope stability project. Both of these projects were conducted to help determine risks to facilities and developments.

Both the fire suppression efforts and the BAER recovery efforts demanded the attention of all Forest personnel. Many employees were reassigned to the fire needs throughout the Forest, leaving a skeletal workforce behind which strived to meet all requirements of Congress and the people of the United States. A large portion of the field season was lost to meeting the demands of an extreme fire season.

II. SUMMARY OF THE RECOMMENDED ACTIONS

This section includes a summary table and discussion of those monitoring items needing attention from the Forest Supervisor and Forest Leadership Team. Group Leaders responsible for each monitoring item have recommended actions based on their evaluation. The following categories of actions are used.

Results Are Acceptable/Continue to Monitor

The results for these monitoring question are either acceptable (within the 'Threshold of Variability' listed in Chapter V of the Forest Plan), or more than one or two years of data is needed to evaluate the results. For some items, several years of data collection is necessary to evaluate the effectiveness or validity of the Plan. Studies are being initiated to provide the baseline data and inventories necessary to answer these questions.

Change Management Practices

The results for these monitoring questions exceed the 'Threshold of Variability' for a particular monitoring item question in Chapter V. An evaluation of the situation indicates the need to change practices to comply with the Forest Plan.

Further Evaluation/Determine Action

The results for these monitoring questions may or may not exceed the 'Threshold of Variability'. Additional information is needed to better identify the cause of the concern and to determine future actions.

Propose Forest Plan Amendment

Areas where results are inconsistent with the Forest Plan objectives or the Forest Plan direction was not clear. The follow-up action requires either changing or clarifying the Forest Plan through the amendment or revision process. Nonsignificant amendments may be made by the Forest Supervisor. Significant amendments require Regional Forester approval.

The following table summarizes follow-up actions needed for each Monitoring Question. Following the table is a brief discussion of each monitoring item where follow-up action is required (Recommendations for 1995). Many items this year will require further evaluations due to the implementation of the President's Forest Plan and the severe fire season of 1994.

SUMMARY TABLE

Monitoring Item	Results OK, continue monitoring	Change Management Practices	Further Evaluation	Propose Forest Plan Amendment
Recreation Opportunity Spectrum	■			
Trails			■	
Developed Recreation			■	
Management of Dispersed Recreation Areas	■			
Wild, Scenic, and Recreation Rivers	■			
Scenery Management		■		
Wilderness			■	
Cultural Resources (Heritage Resources)	■			
Coordination of Forest Programs with Indian Tribes	■			
Sensitive Plants, Biodiversity, and Old Growth	■		■	
Old Growth and Mature Habitat Indicators				
Mountain Goat Habitat	■			
Deer and Elk Habitat	■			
Primary Cavity Excavators				
Bald Eagle Habitat	■			
Peregrine Falcon	■			
Grizzly Bear	■			
Gray Wolf	■			
Marbled Murrelet	■			
Bighorn Sheep	■	■		
Townsend's Big-Eared Bat	■			
Canadian Lynx	■			
Ferruginous Hawk	■			
Common Loon	■			
Harlequin Duck	■			
Red-Legged Frog and Western Pond Turtle	■			
Hawk and Owl Nest Sites	■			
Timber Offered	■			
Timber Harvest Units	■			
Timber Harvest	■			
Silvicultural Practices	■			
Reforestation	■			
Lands Not Suitable for Timber Management	■			
Maintenance of Long-Term Soil Productivity	■		■	
Riparian			■	
Water and Fish Habitat	■			
Columbia R. Basin Anadromous Fish Policy Implementation	■			
Aquatic Habitat Objectives	■			
Range Management	■			
Road Management	■			
Insect and Disease			■	
Forest Fire Protection	■			
Use of Prescribed Fire	■			
Air Resource Management	■			
Mining Site Reclamation			■	
Mining Operating Plans	■			
Community Effects	■			
Resource Budgets	■			
General Monitoring of Standards and Guidelines	■			

RECOMMENDATIONS

The following recommendations summarize the individual monitoring item evaluation contained in the following pages of this report.

A. RECREATION

Recreation Opportunity Spectrum (ROS)

1. No additional action is necessary except to continue monitoring as scheduled.

Trails

1. Continue to request more trail maintenance funds to keep up with maintenance needs.
2. Place emphasis on restoring trails impacted by wildfires and fire suppression activities.

Developed Recreation

1. The Forest had Field's Point Landing, 14 campgrounds and seven trailheads, under concession operation in 1994. This program is going well and will be expanded in 1995. The benefits of the concessionaire program are as follows:

Campgrounds can be open to the public at a full service level with greatly reduced cost to the Forest.

The maintenance work needed at these sites will be completed.

Similar, or perhaps higher quality service can be provided to the public.

2. We need to implement vegetation management plans for two campgrounds with significant root disease problems: Tronsen and Kachess. Tronsen campground is closed to the public until treatment of hazard trees can be completed. Both plans are waiting for analysis required in the President's Forest Plan.
3. Vegetation Management Plans also need to be completed at several other sites. Unsound trees are susceptible to blowdown in the wind, posing a hazard to campers. Plans need to be implemented as soon as possible to eliminate hazardous trees, stop the spread of tree diseases, and provide an acceptable recreation setting while rehabilitation of sites occurs.

Management of Dispersed Recreation Areas

1. Continuing in 1995, inventory of dispersed sites and areas will be done as part of the watershed analysis process. Detailed mapping and description of recreation use impacts in riparian areas will be completed. Out of this process will come recommendations to rehabilitate impacted areas and, to relocate use to areas more suitable for the type of activities occurring.

B. WILD, SCENIC, AND RECREATION RIVERS

1. In 1995, we will continue initiating the watershed assessments required by the President's Forest Plan. In this analysis process we will do intensive inventory of resource conditions in riparian allocations, including the corridors of rivers recommended for wild and scenic designation. This will greatly increase our knowledge of current conditions. We will inventory all river corridors during a four to five year process. We also will implement restoration projects that will need careful scrutiny to assure we maintain the resource values and conditions on rivers recommended for designation.

C. SCENERY MANAGEMENT

Blewett Pass Highway 97 Viewshed

1. To maintain scenic values, additional vegetative changes along the roadside from the top of Blewett Pass to Bonanza Campground should be kept to a minimum adjacent to areas of past vegetative treatments, except to ensure public safety in campgrounds and adjacent to Highway 97.
2. Continue working with the Department of Transportation and permittees to minimize signs, structures, and roadside improvements.

White Pass Viewshed

1. Continue working with White Pass Ski Company to improve signs, landscaping, and color scheme.
2. Continue monitoring Highway 12 to maintain the highest possible scenic quality by designing all activities to retain naturally appearing scenery.
3. Continue cooperating with the Washington State Department of Transportation towards safety, functional, and aesthetically pleasing structures in project planning.

Shady Pass Viewshed

1. Identify areas adjacent to the existing old cutting units which require scenic rehabilitation before any further vegetative treatment is planned.
2. Continue to find alternative solutions for cut bank restoration to reduce visual contrast of roads.
3. Consult landscape architects to provide an analysis of rehabilitation needs.
4. In spotted owl habitat, consider rearrangement of down trees in a manner to protect scenic quality as viewed from roads and trails.

Stand Character Goals

1. No additional action is necessary except to continue monitoring as scheduled.

D. WILDERNESS

Recreation Impacts on Wilderness Resource

1. Complete a detailed overview of monitoring data for all wildernesses and determine the trend of LAC Standards. Prescribe appropriate management actions.
2. Evaluate current Standards and Guidelines to be sure that the LAC standards are adequate to allow assessment of resource conditions that have problems or we are concerned about.

E. CULTURAL RESOURCES (HERITAGE RESOURCES)

Cultural (Heritage) and Historical Site Protection

1. Continued monitoring of active projects will ensure that cultural properties are protected from project activities. A review of all proposed projects should help in ensuring that potential effects on cultural properties are properly considered during the planning stage.
2. The Forest is considering having a State-wide training session for cultural resource specialists and fire personnel in order to produce a plan for better participation in future fires and better site protection. The State Historic Preservation Office will be a co-sponsor of this session.

Cultural (Heritage) and Historical Site Rehabilitation

1. Continued monitoring of the condition of the picnic shelters will enable us to assess if emergency measures are needed.
2. This summer's surveys will provide data on the protection or stabilization measures needed for those cultural properties damaged from last summer's wildfires.

American Indians and Their Culture

1. Continue working closely with both Yakama and Colville to keep them informed about upcoming projects and to share information.

F. COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES

Coordination and Communication of Forest Programs with Indian Tribes

1. No additional action is necessary except to continue cooperation and monitoring as scheduled.

G. SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH

Maintenance of Sensitive Plant Populations

1. Continue to monitor existing plots and to standardize methodology.

Biodiversity

1. Specifically address the new monitoring items developed in the President's Forest Plan.

Old Growth Ecosystems

1. Specifically address the new monitoring items developed in the President's Forest Plan.

H. WILDLIFE

Old Growth and Mature Habitat Indicators: Spotted Owl, Pileated Woodpecker, Marten, and Three-Toed Woodpecker

1. Monitor burned sites for owl use.
2. Begin implementing President's Forest Plan.
3. Reduce risk of fires next to owl sites that are to be maintained.
4. A systematic monitoring program needs to be developed to monitor the network, and to determine how many network sites do not have the large snags required.

Mountain Goat Habitat

1. Monitoring needs to be more specific to determine if populations are increasing or decreasing.

Deer and Elk Habitat

1. Coordinate with range permittees, Washington Department of Fish and Wildlife and other resource objectives within the Forest Service to determine the numbers of elk, deer, and livestock that should be using the Forest.
2. Identify and implement ways to bring the numbers in line with forage available.
3. Establish and maintain a system of monitoring forage use by big game animals that can be used to determine population trends of big game.

Primary Cavity Excavators

1. Prepare a province plan with inventories showing where the three habitat types for primary cavity excavators exist, their general condition and management options.

2. Prepare a map of the three habitat types and quantify the existing conditions of habitat for primary cavity excavators in watershed assessments. The information in the watershed assessments in 1994 did not assist much in most assessments.
3. Complete a review on the predictions of snags for green timber sales. This review would determine the prediction accuracy and the actual numbers of snags left now and for the future.
4. Since ecosystem management has become the goal of the Forest Service, resource areas other than wildlife have become interested in maintaining snags or dead down trees. The models available were developed for wildlife and may or may not provide for other resources. Therefore, guidelines should be developed that manage for snags and down dead trees for the ecosystem.
5. Gather information on the longevity of snags created from fires and from other causes. This would help predict the effects of management, and in making decisions for projects.
6. Gather information on the use of snags by wildlife for the three habitat types; then, more accurate models and effects determinations could be made.
7. Inventory projects for snags and dead down trees so effects of these projects can be quantified and a better determination of potential populations can be made.

Bald Eagle Habitat

1. Monitor nest sites for reproduction, and search for unknown active nest sites.
2. Inventory sites burned and determine their condition and the need for further management.

Peregrine Falcon

1. Monitor active nest sites yearly.
2. Inventory for additional nest sites.

Grizzly Bear

1. A decision on finalizing the recovery plan is needed; then, the Forest can organize and begin planning for implementation.

Gray Wolf

1. Inventory to locate dens and verify wolf use on the Forest.

Marbled Murrelet

1. Continue to monitor within the range of the species.

Bighorn Sheep

1. Resolve the conflicts in direction for forage and interactions between bighorn sheep and domestic livestock. Continue to study with Washington Department of Fish and Wildlife.

2. Prepare plans for managing bighorn sheep. Address habitat needs and existing conditions for bighorn sheep in watershed assessments and NEPA documents for grazing allotments. Inventory habitat and species to determine their range.

Townsend's Big-Eared Bat

1. Locate the reproductive site or sites for Boulder Cave.
2. Inventory habitat and species to determine their range. Report sightings of these species and load into Wildobs data base .
3. Develop a map of habitat by quantity and quality so trends can be determined.

Canadian Lynx

1. Inventories are needed throughout lynx habitat to determine if populations are present and their condition. Report sightings of these species and load into Wildobs data base.
2. Develop a map of habitat by quantity and quality so trends can be determined.
3. Habitat plans are needed for the province to determine which watersheds need habitat change to improve conditions.

Ferruginous Hawk

1. Inventory habitat and species to determine their range. Report sightings of these species and load into Wildobs data base.
2. Develop a map of habitat by quantity and quality so trends can be determined.

Common Loon

1. Inventory habitat and species to determine their range. Report sightings of these species and load into Wildobs data base.
2. Develop a map of habitat by quantity and quality so trends can be determined.

Harlequin Duck

1. Inventory habitat and species to determine their range. Report sightings of these species and load into Wildobs data base.
2. Develop a map of habitat by quantity and quality so trends can be determined.

Red-Legged Frog and the Western Pond Turtle

1. Inventory habitat and species to determine their range. Report sightings of these species and load into Wildobs data base.
2. Develop a map of habitat by quantity and quality so trends can be determined.

Hawk and Owl Nest Sites

1. Increase pre-activity surveys to locate nests, and keep better records of located nest sites.

I. TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES

Timber Offered (Allowable Sale Quantity (ASQ) and Timber Sale Program Quantity (TSPQ))

1. No additional action is necessary except to continue monitoring as scheduled.

Timber Harvest Units

1. No additional action is necessary except to continue monitoring as scheduled.

Timber Harvest

1. No additional action is necessary except to continue monitoring as scheduled.

Silvicultural Practices

1. No additional action is necessary except to continue monitoring as scheduled.

Reforestation

1. No additional action is necessary except to continue monitoring as scheduled.

Lands Not Suitable for Timber Management

1. No additional action is necessary except to continue monitoring as scheduled.

J. SOIL, WATER, FISHERIES AND RELATED WATERSHED MANAGEMENT

Maintenance of Long-Term Soil Productivity

1. Discontinue the practice of combined timber logging and mechanical (tractor) piling on ash/pumice and other susceptible fine texture soils.
2. To the extent practical, utilize timber sale contract provisions to designate and use the same skid trails on multi-entry activities to minimize compaction and other soil disturbance.
3. Continue monitoring tractor logged and tractor logged/piled areas to see if they are within Forest Plan Standards and Guidelines.
4. Restore sites that do not meet Forest Plan Standards and Guidelines by appropriate methods and techniques including ripping and seeding skid trails and landings and by avoiding practices that will cause further degradation.
5. In addition to bulk density, point sampling of soil textures, organic duff, nutrient, and organic matter content should be considered. Monitor surface erosion parameters, such as ground cover, and the effectiveness of drainage features and road closures.

6. Better records are needed to show site condition during activities and to document operations. Assemble and integrate knowledge of past activities on each site and incorporate it into project analysis.

RIPARIAN GUIDELINES AND RECOMMENDATIONS

Fish/Riparian Standard and Guideline Implementation

1. Although no implementation monitoring was conducted, this type of monitoring is of critical importance. Based on the monitoring results from 1993, the recommendation is to subject a representative percentage of all projects and a high percentage of timber sale and watershed restoration projects on the Forest to implementation monitoring.
2. Landform and soil mapping, analysis, and interpretation is an important technical element of project level planning and should be included in all plan development and execution.
3. Specific riparian management objectives were not always identified as directed by the Forest Plan. Continued implementation monitoring should be conducted to ensure that these objectives have been identified.

Effectiveness of Riparian Standards and Guidelines

1. Continue to develop Standards based on the potential of the watershed.
2. Ensure that projects do not contribute to any further degradation below the current standards. The implementation monitoring is a key element in keeping projects consistent with regulations and direction.
3. Continue monitoring.

Fish Management Indicator Species (MIS) Populations

1. Continue to cooperatively monitor bull trout spawning populations.
2. Ensure that no management actions adversely affect habitat or populations. Implementation monitoring is a key element in keeping projects consistent with the regulations and direction.

Columbia River Basin Anadromous Fish Policy Implementation and Salmon Summit Action Plan Commitments

1. Continue the progress the Forest is making to refine our understanding of the watershed processes.
2. Institutionalize a watershed approach to ecosystem management.
3. Continue to develop, implement, evaluate, and report on the monitoring program.
4. Continue our habitat inventory and Desired Future Condition analysis.

Aquatic Habitat Objectives

1. Emphasis on watershed analysis began in Fiscal Year 1994 (FY 1994). We need to continue developing site-specific Standards for habitat conditions that reflect existing conditions and a definition of desired future conditions that are based on key hydrologic processes. As these site-specific Standards are developed, they will be incorporated into the Forest Plan and provide direction for short and long term restoration.

Aquatic Ecosystems

1. Continue stream inventory program and begin re-survey of streams inventoried in the 1989-1991 period.
2. Cooperate with Washington Department of Fish and Wildlife and U.S. Fish and Wildlife Service to conduct fish distribution and density surveys.
3. Monitor large wood and substrate movements in the Mad River (level II inventory).

K. RANGE MANAGEMENT

1. Continue to monitor allotments, and if necessary take administrative action so livestock grazing is in compliance with Forest Plan Standards and Guidelines.

L. ROAD MANAGEMENT

Road Construction/Reconstruction

1. No further action is needed at this time. Monitoring indicates management direction is being achieved, continue current course.

Road Maintenance

1. Due to the uncertainty about future funding and harvest levels, it is premature to make assumptions about revised maintenance levels; however, it is logical to assume that should maintenance funds continue to decrease, more roads will be closed to public use.

Roads Closed/Obliterated

1. Additional yearly information is needed.

M. INSECT AND DISEASE

1. Additional study and information is needed before action is taken.

N. FOREST FIRE PROTECTION

Forest Fire Protection

1. No additional action is necessary except to continue monitoring as scheduled.

Use of Prescribed Fire

1. Many scientists and members of the public are becoming increasingly concerned about the ecological effects of the exclusion of fire from forest ecosystems. There is a need to gather additional specific information.

O. AIR RESOURCE MANAGEMENT

1. No additional action is necessary except to continue monitoring as scheduled.

P. MINERALS

Mining Site Reclamation

1. Request Forest Plan level funding that will allow 100 percent monitoring of all mineral related activities.
2. Additional monitoring should be conducted to ensure adequate reclamation is being completed.

Mining Operating Plans

1. Continue to request additional funding that allows 100 percent monitoring of all mineral related activities.
2. Based upon the monitoring that was completed, a Forest Plan adjustment is not necessary at this time.

Q. COMMUNITY EFFECTS AND RESOURCE BUDGETS

Community Effects

1. No additional action is necessary except to continue monitoring as scheduled.

Resource Budgets

1. No additional action is necessary except to continue monitoring as scheduled.

R. GENERAL MONITORING OF STANDARDS & GUIDELINES

1. No additional action is necessary except to continue monitoring as scheduled.

III. ACTIONS TAKEN ON 1993 RECOMMENDATIONS

This section briefly explains actions taken on last year's recommendations. For more detailed information on a specific activity please refer to the next section, Individual Monitoring Items.

RECREATION

Trails

The Forest had a \$152,000 program in recreation KV projects (KV stands for the Knutson-Vandenberg Act of 1930 which allows for timber sale money to be used on various forest projects) in FY 1994. Roughly half was spent on trail work needed as a result of past timber sales, from the period of about 1988 to 1992. We are greatly improving our program to protect trails during logging and expect to need less KV funds in the future to restore trails.

There were 10.4 miles of trail constructed in 1994. Work was accomplished on the Icicle Gorge Trail and a new trail near Holden Village.

Developed Recreation

We added eight campgrounds and six trailheads to the concession program in FY 1994. Although we had some permit compliance problems with one concessionaire, the benefits of the concession program are being realized and the overall condition of these developed sites is improving.

A vegetation management plan and Biological Evaluation was completed for the Goose Creek Campground at Lake Wenatchee. The campground received heavy treatment of hazard tree removal in 1994.

Kachess Campground treatment is waiting for the completion of the Adaptive Management Area Plan. Tronsen Campground is still closed pending the completion of watershed analysis.

In FY 1994 we received Capital Investment Program funds for the following projects:

- \$190,000 for improvements to Nason Creek, Glacier View and Goose Creek Campgrounds on the Lake Wenatchee District.

- \$47,000 for the feasibility study for the third phase of development at Field Point.

- \$27,000 toward completion of the Bygone Byways interpretive trail on the Stevens Pass Highway.

Dispersed Recreation

Watershed analysis is proceeding and near completion for the Little Naches River, Icicle Creek, Nason Creek, Cle Elum River and the Entiat/Mad River watersheds. Inventories of site condition along these stream have been completed.

Monitoring of dispersed sites was increased in FY 1994 for watershed assessments. Rehabilitation projects will be implemented following the completion of the assessments.

Considerable effort went into control of law enforcement problems on the Cle Elum District adjacent to Kachess Campground, and the developed sites along the Cle Elum River. A large area was closed to the discharge of firearms. Strong law enforcement efforts to control depreciative behavior was done in the Cle Elum, Leavenworth, and Chelan areas.

WILDERNESS

The entry quota system for areas in the Alpine Lake Wilderness was delayed until 1996. Progress was made in FY 1994 toward completion of initial site inventories, but work remains to be done.

SCENERY MANAGEMENT

Forest landscape architects received one or more projects per Ranger District in order to assess potential cumulative effects of resource activities on scenery. Field review of trees where projects have occurred was done along three major viewsheds.

White Pass Viewshed

The Tieton Dam Interpretive Viewpoint was completed this year to enhance recreation experiences and information.

Signage at White Pass Ski area was consolidated to enhance information and reduce clutter.

Shady Pass Viewshed

A portion of the viewshed was analyzed to find ways to improve the viewshed through rehabilitation of past management practices.

CULTURAL RESOURCES (HERITAGE RESOURCES)

The Passport in Time test excavation for a housepit village site located along the Wenatchee River on the Lake Wenatchee Ranger District was a success with twelve volunteers giving 576 hours of their time and labor towards the project. Portions of five housepit depressions were tested with a recovery of a large amount of river mussels, fish bone, and late period projectile points, knives, and other tools and flakes (see Monitoring Item - Cultural and Historical Site Protection for more information on this project).

FOREST FIRE PROTECTION

Use of Prescribed Fire

The Forest continues to gather information concerning the use of prescribed fire. This is an ongoing part of the Fire Program.

IV. INDIVIDUAL MONITORING ITEMS

A. RECREATION

Monitoring Item - RECREATION OPPORTUNITY SPECTRUM (ROS)

The goal is to provide a well balanced array of recreation opportunities across the breadth of the Recreation Opportunity Spectrum (ROS) to meet the public demand for outdoor recreation. The monitoring question is:

1. Are Forest Management activities resulting in changes in ROS settings; and, do end results meet the experience levels expected in the Forest Plan?

During 1994, a variety of projects were reviewed to determine if management activities were done in conformance with ROS classes established in the Forest Plan. Due to the fire season, a small number of projects were reviewed:

- Fields Point Phase III Development
- Naches Campgrounds
- Icicle Gorge Trail
- Snow Lake Bridge Replacement (fire loss)
- Goose Creek Campground Vegetation Management Plan

The review of these projects included an examination of the environmental analysis prepared for each project, as well as the field inspection of the project area. These projects were all in various stages of completion, but no deviations were observed in either the planning or implementation of the appropriate ROS classes for the project areas. Work is being planned and accomplished in accordance with ROS Class designations.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - FOREST TRAILS

The goal is to manage trail use to provide recreation opportunities in a wide range of recreation settings and in harmony with other resource management objectives. The monitoring questions include:

- 1. Are trails providing the variety of opportunities intended in the Forest Plan?***
- 2. Are trails with mixed users (e.g. horse/hiker, hiker/ORV) meeting the expectations for all intended users?***

In 1994, our budget increased for trail maintenance and we were anticipating a good season. We were able to get some early season work done, but after the 4th of July we had increasing activity in fire suppression and trail crews were called to fight fire. By the end of July everyone was committed to fire suppression and little work was done on the trail system except for maintenance contracts. The fire activity lasted into late September. On the north end of the Forest we had many access roads and trails closed due to the fires. We were able to get some late season work done, but the season was essentially lost.

We did get a significant amount of logging-out done on the trails within the burned areas to provide access for fire crews. The trails in the burned areas will need heavy maintenance work for several years following the fires. The downside is that we are not making headway against the trail maintenance backlog and we continue to have soil erosion and riparian zone impacts from the trail system.

Trail maintenance budgets are now on a downward trend. With this trend of funding, significant amounts of backlog maintenance will be deferred to the future. Constant public feedback tells us that getting trails logged-out is very important for access and ease of travel. Many users expect us to log-out the entire trail system each year.

From public comment, we are reasonably satisfied that the users are finding the variety of opportunities they are seeking. However, there is continued concern expressed by the public that more trails are needed, particularly outside of wilderness. There is increasing concern by various user groups that they are losing opportunities for their special interest. These are primarily horse and mountain bike users. They feel that as hikers and horse users are displaced out of wilderness, there will be greater interest and competition for trails outside wilderness resulting on further restrictions on bike and horse use.

There were 10.4 miles of trail constructed 1994. Work was accomplished on the Icicle Gorge Trail and a new trail near Holden Village.

No major conflicts were received as a result of mixed use on many trails. The Forest received no letters from the public regarding trail conditions or user conflicts in both the wilderness and non-wilderness areas. This may have been due to relatively low use on much of the Forest because of fires and fire danger.

Recommendations and Actions Include:

- a. Continue to request more trail maintenance funds to keep up with maintenance needs.
- b. Put emphasis on restoring trails impacted by wildfires and fire suppression activities.

Monitoring Item - MANAGEMENT OF DEVELOPED RECREATION FACILITIES

The goal is to provide safe, well maintained, developed recreation facilities for the public commensurate with recreation demand. Monitoring questions include:

- 1. Are available developed recreation facilities meeting public demand?***
- 2. Are developed recreation sites, areas, and facilities being adequately maintained to serve the public and protect resource values?***

Visitor use at developed recreation sites continues to be very high. Heaviest use occurs on weekends, nearly filling all sites. There is an excess supply of developed sites on weekdays, early and late in the season. The expansion of sites planned in the Capital Investment Program, and the schedule in Forest Plan Appendix A, will meet anticipated increases in demand.

We are receiving requests from the public for more amenities at some highly developed sites, such as more RV hook-ups and showers.

The backlog of heavy maintenance continues to grow as funding for maintenance is decreasing. Shifting emphasis to concessionaire operated campgrounds will help reduce the maintenance backlog.

In 1994, we conducted a review of the campgrounds in the American, Bumping, Naches and Tieton River drainages. All these campgrounds need extensive rehabilitation work to bring them up to Forest Service Standards and expectations of users. The campgrounds in the American River drainage, along Highway 410, and

Bumping Lake Campground are scheduled for reconstruction beginning in 1999. In the meantime, these sites are being considered for operation through a concessionaire. Under reduced budgets the campgrounds can be better operated when permitted out to operators who are able to use most of the fees collected to maintain these sites.

The Goose Creek Campground at Lake Wenatchee received heavy treatment of hazard tree removal in 1994. About 260 diseased and weakened trees were removed from the site. In 1995 the vegetation enhancement phase of the project will start, which consists of planting trees, shrubs and grass to revegetate the areas where the trees were removed.

Recommendations and Actions Include:

- a. The Forest had Field's Point Landing, 14 campgrounds and seven trailheads, under concession operation in 1994. This program is going well and will be expanded in 1995. The benefits of the concessionaire program are as follows:

Campgrounds can be open to the public at a full service level with greatly reduced costs to the Forest.

The maintenance work needed at these sites will be completed.

Similar, or perhaps higher quality service can be provided to the public.

- b. We need to implement vegetation management plans for two campgrounds with significant root disease problems: Tronsen and Kachess. Tronsen campground is closed to the public until treatment of hazard trees can be completed. Both plans are waiting for analysis required in the President's Forest Plan.
- c. Vegetation Management Plans also need to be completed at several other sites. Unsound trees are susceptible to blowdown in the wind, posing a hazard to campers. Plans need to be implemented as soon as possible to eliminate hazardous trees, stop the spread of tree diseases, and provide an acceptable recreation setting while rehabilitation of sites occurs.

Monitoring Item - MANAGEMENT OF DISPERSED RECREATION AREAS

The goal is to provide opportunities for dispersed recreation activities where compatible with other resource management objectives. Monitoring questions include:

- 1. Are dispersed sites meeting public demand?***
- 2. Is the Recreation Opportunity Spectrum providing the expected variety for Forest users?***

Dispersed recreation activities continue to be a high percentage of the total recreation use on the Forest. We have a more than adequate supply of dispersed sites and areas in the Roaded recreation setting across the Forest. If there is a shortage in this category, it is for areas adjacent to streams and lakes that are accessible by road. However, use in these areas is a major issue with the President's Forest Plan Riparian Reserve allocation. Data gathered for watershed assessments indicates that dispersed recreation sites are deteriorating. Problems such as soil erosion, compaction, vegetation loss, sanitary conditions, and excessive litter are common on all Districts. Much of this use and related problems are within streamside riparian zones.

Recommendations and Actions Include:

- a. Continuing in 1995, inventory of dispersed sites and areas will be done as part of the watershed analysis process. Detailed mapping and description of recreation use impacts in riparian areas will be completed. Out of this process will come recommendations to rehabilitate impacted areas, and to relocate use to areas more suitable for the type of activities occurring.

B. WILD, SCENIC AND RECREATIONAL RIVERS

Monitoring Item - WILD, SCENIC AND RECREATIONAL RIVERS

The goal is to retain the character and attributes of rivers recommended for Wild, Scenic, or Recreational designation. The monitoring question is:

- 1. Are resource management activities along recommended river corridors being conducted in a manner to provide protection at the appropriate level of classification?***

During 1994 there were no projects implemented that had the potential to effect the classification of any river administratively recommended for designation under the Wild and Scenic Rivers Act.

Recommendations and Actions Include:

- a. In 1995, we will continue initiating the watershed assessments required by the President's Forest Plan. In this analysis process we will do intensive inventory of resource conditions in riparian allocations, including the corridors of rivers recommended for Wild and Scenic designation. This will greatly increase our knowledge of current conditions. We will inventory all river corridors during a four to five year process. We also will implement restoration projects that will need careful scrutiny to assure we maintain the resource values and conditions on rivers recommended for designation.

C. SCENERY MANAGEMENT

Monitoring Item - VISUAL RESOURCE OBJECTIVES

The objective is to manage vegetation and facilities to provide views that are consistent with the stated scenic quality objectives for each management area. The monitoring question is:

1. Do the cumulative effects of all resource activities within a viewshed meet the desired visual condition?

Forest landscape architects reviewed one or more projects per Ranger District in order to assess the potential cumulative effect of resource activities on scenery. Field review of the area where projects have occurred was done along three major viewsheds.

Blewett Pass Highway 97, White Pass Highway 12, and Shady Pass viewsheds were selected for summary analysis. Scenic resource analysis on these viewsheds indicate that the viewsheds vary from natural appearing to an altered condition. Further monitoring of these viewsheds was done this year.

Blewett Pass viewshed is in a natural to slightly altered condition throughout most of the travel route, except for the altered condition between Blewett Pass and Bonanza Campground. Any additional vegetative changes along the roadside between Blewett Pass and Bonanza Campground should be kept to a minimum adjacent to the area of past vegetative treatment.

White Pass viewshed is in a natural to slightly altered condition throughout the travel route. Vegetative changes throughout the travel route blend well with the natural diversity of landscapes from the Forest boundary to White Pass. The scenic qualities of this viewshed are maintained at a very high level. Vegetation changes and structures along the Highway in the viewshed should continue to be monitored and enhanced to protect scenic qualities. The Tieton Dam Interpretive Viewpoint was completed this year to enhance recreation experiences and information. Signage at White Pass Ski area was consolidated to enhance information and reduce clutter.

Shady Pass viewshed is in a slightly altered to altered condition. A portion of the viewshed was analyzed to find ways of improving the viewshed through rehabilitating past management practices. Reducing visibility of existing roads, seeding roadside cuts and fill banks with vegetation, and blending new vegetation management with the old units are some techniques to improve scenic quality. Disposing of slash piles and cleaning of old landings was done two years ago with success. Shady Lake Salvage was sold in 1994 to clean up the blown down trees. A portion of the blown down trees in the foreground was left due to spotted owl habitat requirements. These areas are not aesthetically pleasing. Future vegetative management

along the viewshed should be designed to soften the existing older units and to avoid adjacent units where openings do not improve scenic quality. Other vegetative treatments should improve or maintain scenic quality.

Firebreak lines were re-created due to the catastrophic type fires of 1994. The area of Chesapeake Saddle, towards Grouse Mountain, has been altered. The strategy is to reduce the visual impact by blending the debris into the earth, or by rearrangement of the materials.

Recommendations and Actions Include:

Blewett Pass Highway 97 Viewshed

- a. To maintain scenic values, additional vegetative changes along the roadside from the top of Blewett Pass to Bonanza Campground should be kept to a minimum adjacent to areas of past vegetative treatments, except to ensure public safety in campgrounds and adjacent to Highway 97.
- b. Continue working with the Department of Transportation and permittees to minimize signs, structures, and roadside improvements.

White Pass Viewshed

- a. Continue working with White Pass Ski Company to improve signs, landscaping, and color scheme.
- b. Continue monitoring Highway 12 to maintain the highest possible scenic quality by designing all activities to retain naturally appearing scenery.
- c. Continue cooperating with the Washington State Department of Transportation toward safety, functional, and aesthetically pleasing structures in project planning.

Shady Pass Viewshed

- a. Identify areas adjacent to the existing old cutting units which require scenic rehabilitation before any further vegetative treatment is planned.
- b. Continue to find alternative solutions for cut bank restoration to reduce visual contrast of roads.
- c. Consult landscape architects to provide an analysis of rehabilitation needs.

- d. In spotted owl habitat, consider rearrangement of down trees in a manner to protect scenic quality as viewed from roads and trails.

Monitoring Item - STAND CHARACTER GOALS

The objective is to manage vegetation so that the stand character (species and structural mix) is moving in the direction specified for each Visual Quality Objective (VQO). The monitoring question is:

1. Are related Standards and Guidelines being implemented, and do they achieve stated goals and objectives, particularly scenic character goals?

The desired future condition for scenery is a multi-story stand composition, variety and diversity of large trees in groves, clumps, and/or scattered throughout the landscape. The high degree of naturalness is desirable.

In the last six years, more extended shelterwood-type cutting practices and partial cutting concepts have been initiated throughout the viewsheds. This helps achieve a long-term forested environment with a more natural appearing landscape with scattered groups, and individual large trees.

The trend of harvest practices in the last four years has been toward fewer openings (clearcutting) and heavily oriented toward partial cutting and thinning, where trees are left to achieve scenic quality goals.

Another goal is to reduce the amount of contrast in the viewshed. The trend is that the viewsheds are recovering to more naturally appearing landscapes. In addition, timber management has occurred on fewer acres since 1990, down from approximately 14,000 acres to about 2,500 acres annually in 1994.

An example of specific scenic goals to maintain and perpetuate large yellow bark ponderosa pines was monitored along the Blewett Highway 97 on the Diamond Timber Sale. Large clumps of trees were left and other trees thinned out to make room for the existing large trees to be seen from the Highway. In another sale, a multi-level stand composition was left to provide scenic variety and reduce the visual contrast as viewed from Highway 97.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

D. WILDERNESS

Monitoring Item - RECREATION IMPACTS ON WILDERNESS RESOURCES

The goal is to perpetuate wilderness character, natural ecological processes, and to provide recreation opportunities appropriate in wilderness. The monitoring question is:

1. Is recreation visitor use or management resulting in changes in the physical, biological or social settings that approach Limits of Acceptable Change (LAC) Standards specified in the Forest Plan?

The monitoring approach in wilderness consists of an inventory stage with follow-up monitoring one to five years later to determine a trend in resource conditions. An upward or downward trend is significant in determining if we have potential problems which approach the Limits of Acceptable Change. As we have been monitoring since the approval of the Forest Plan, data taken in initial inventories indicate that in some areas, we have resource conditions which already exceed Forest Plan Standards and Guidelines. This is mostly the case for social conditions. Many campsites exceeded maximum Standards when the area was designated as wilderness and continue to exceed Standards. This makes the determination of a trend important to understand if resource conditions are improving or declining.

In 1994 we completed little monitoring due to the fire season. By early July many of the Wilderness Rangers were involved in fire suppression, and by the end of July all were involved basically until the end of the field season.

Recreation use of wilderness was significantly down on the north end of the Forest due to the fires and fire danger. A significant portion of the east end of the Alpine Lakes Wilderness was essentially closed to visitors. About 10,300 acres of the Alpine Lakes Wilderness burned.

We are getting fairly close to completing the initial inventory of all existing campsites in the wildernesses on the Forest. From discussions with wilderness managers, it appears that the following percentage of campsites approach or exceed Forest Plan Standards by Recreation Opportunity Class:

Pristine	10% - 30%
Primitive	15% - 35%
Semi-Primitive	20% - 40%
Transition	35% - 50%

It is difficult without follow-up monitoring to determine the trends, but it appears that we need to do a detailed analysis of monitoring data from all Districts, and determine if actions are needed to respond to the situations.

We are also seeing some increases in erosion problems on trails in heavily used areas. This is due in part to heavy recreation use and also, a lack of funds to do proper drainage work. There are many wet, muddy areas on trails which cause users to walk to one side widening the trail and braiding of parallel trails. We do not presently have Standards or Guidelines to address this problem.

User built and maintained trails continue to be a problem. New trails are showing up, mostly leading to lakes that were previously not accessed by trails. People are taking it upon themselves to re-open intentionally abandoned trails that were taken off the system because of resource problems or because the area was classified Pristine in the Forest Plan.

Recreation use is also resulting in the increase and spread of non-native plants and noxious weeds. We are formulating plans to deal with this problem.

Recommendations and Actions Include:

- a. Complete a detailed overview of monitoring data for all wildernesses and determine the trend of LAC Standards. Prescribe appropriate management actions.
- b. Evaluate current Standards and Guidelines to be sure that the LAC Standards are adequate to allow assessment of resource conditions that have problems or we are concerned about.

E. CULTURAL RESOURCES (HERITAGE RESOURCES)

Monitoring Item - CULTURAL AND HISTORICAL SITE PROTECTION

The goal is to protect cultural and historical resources from vandalism, disturbance from project activities, and natural degradation. Monitoring questions include:

- 1. Are the National Register characteristics of unevaluated and significant cultural resource properties being protected?***
- 2. Are all reasonably locatable cultural resources being discovered during project area reconnaissance?***

For FY 1994, 40 proposed project areas were surveyed for the presence of cultural properties. A total of 19,123 acres were inventoried, which resulted with 24 new prehistoric sites and 11 new historic sites being recorded. This brings the Forest's total number of cultural properties to about 750. About half of the projects involved 114 cultural properties. The greatest number of projects related to recreation, trails, and wilderness programs with 42 percent. The lands special use permits, minerals, roads, and facilities program had 32 percent. The remainder of the projects related to the fisheries (two percent), range (eight percent), fire/fuels (eight percent), and timber (eight percent) programs. Large-scale undertakings were greatly reduced during 1994, while Forest personnel concentrated on completing watershed analyses.

Fifteen projects were monitored during their activities to ensure that cultural properties present nearby were protected. Almost half of these projects were recreation, while the remainder were fairly evenly spread between timber sales, range, fire, soils, lands, and facilities. Eleven prehistoric sites and five historic sites were monitored during these activities. Three prehistoric sites not previously recorded were discovered during project monitoring. Most of these sites were not affected by project activities.

All standing historic structures eligible or listed in the National Register of Historic Places have yearly maintenance reviews. These include all of the Forest's historic administrative buildings and lookouts, all of the picnic shelters, and a number of trail shelters constructed by the Civilian Conservation Corps. Measures are being taken through yearly maintenance or by requesting future funding to ensure these structures continue their useful lives.

A contract awarded during the previous year was completed, which examined the integrity of cultural remains at rock shelters located on the Leavenworth Ranger District. Of the five shelters present, three contained evidence of prehistoric use. The largest rock shelter's cultural deposits are over a meter deep and contain at least

three separate occupations. These shelters contained stone tools and flakes, bone tools such as fish harpoon points, salmon vertebrae, a large amount of river mussels, and even decorative items such as a drilled pendant and a graphite pendant. Samples of carbonized wood were analyzed and we received C-14 dates of 2,150 +/- 90 BP for the largest rock shelter and 1,460 +/- 80 BP for a smaller rock shelter. These shelters were determined eligible for listing in the National Register.

A prehistoric site on the Naches Ranger District, which was located adjacent to some proposed cutting units in a future timber sale, was also test excavated under contract. From surface evidence, this appeared to be a rather sparse upland occupation located near a spring. Testing indicated the site's deposits were over a meter deep and contained at least two separate prehistoric occupations. The surface deposits were from the late prehistoric period from 2,500 to 200 BP. Whereas projectile points recovered from the deepest deposits are slightly shouldered, lanceolate style and may date from 10,000 to 7,000 BP. These surprising results point to a much earlier use of the forested uplands than any previous archeological work has indicated. This site was also determined eligible for listing in the National Register and the sale unit boundaries will be marked to completely avoid affecting the site.

Additionally, botanical samples and two radiocarbon samples were sent for analyses from a housepit village site located on the Lake Wenatchee Ranger District. The botanical analysis indicated the cultural feature was a prehistoric hearth in which ponderosa pine and Douglas fir wood were burned. Dates obtained from the hearth and surrounding deposits were from 900 +/- 60 BP and 140 +/- 50 BP. The earlier date would place this site within the same time period as other prehistoric sites along the Wenatchee River that have undergone archeological investigations.

The fires last summer caused the postponement of the Passport in Time test excavation that was scheduled for a housepit village site located along the Wenatchee River on the Lake Wenatchee Ranger District. However, the rescheduled excavation was a resounding success with volunteers readjusting their schedules so they could participate. In all, twelve volunteers gave 576 hours of their time and labor toward the project. Portions of five housepit depressions were tested with a recovery of a large amount of river mussels, fish bone, and late period projectile points, knives, and other tools and flakes. A large, deep housepit located on a secondary river terrace contained burned structural members. A C-14 date obtained from this feature dates from 720 +/- 70 BP, which places this site within the same timeframe as other sites along the river. A second housepit feature had a C-14 date of 830 +/- 60 BP.

Other public outreach programs included community school classes and presentations to scout groups by the Forest's archeologists. Interpretive signs are planned to explain the use of Salmon Falls by Native Americans, the possible environment and surroundings of Clear Lake during the time of occupation by Native Americans, and the need to protect root grounds on Manastash Ridge, all on the Naches Ranger District. A brochure written and illustrated by Naches District archeologist has been published by the Yakima Resource Management Cooperative and is being distributed State-wide. The brochure explains the need to protect our heritage and what people can do to help.

During the fall of 1993, a prescribed fire set to control brush and renew meadow vegetation escaped containment on the Lake Wenatchee Ranger District. During the fire suppression efforts a prehistoric site located at a water source was impacted slightly by the wheel ruts caused from a water tanker truck. Once these impacts were brought to the attention of the fire overhead team, use of this water source was discontinued to prevent further impacts occurring to the site.

A number of historic sites were evaluated to determine their eligibility for listing in the National Register. All were found to be ineligible due to a lack of integrity or simply not being of an age to be considered historic. These included a tract of summer homes which contained six residences. Four were found to be ineligible, which caused the tract as a whole to be considered ineligible. A garage associated with a long-since removed lookout and a cabin located within a wilderness were found to be ineligible.

The Forest actively cooperates with the Bureau of Reclamation on projects located on adjacent lands. The past year's projects involved the Bureau's work on the Bumping Lake Dam and the Kachess Lake Dam. Both projects included prehistoric sites within the project areas, and Forest Service archeologists helped to monitor project activities to ensure these sites were protected. The Forest is also an active member of the Yakima Resource Management Cooperative, and assisted in funding an archeologist who conducted pedestrian surveys of high and medium probability areas within two USGS Quadrangles which contained National Forest lands. This work field tested a GIS-derived predictive model of site occurrence. Further work and refinements on this model are planned for this summer.

The major event which affected the integrity of cultural properties was the Chelan County Wildfires of 1994: Tyee, Hatchery, and Round Mountain. These fires burned over 150,000 National Forest acres which contained 23 previously recorded cultural properties. The toll of the fires and suppression efforts on historic properties was severe.

The Tyee Fire contained three sites listed in the National Register: one ranger station and two lookouts. The garage of one of these lookouts was destroyed by the fire and the exterior paint damaged on the lookout. One of the smaller buildings within the ranger station had to be temporarily moved in order to place flood deflecting structures. It remains to be seen if spring rains will cause damaging floods. A trail shelter determined eligible for listing in the National Register was not harmed. A trapper's cabin and water ditch were burned during back-firing efforts and a seven-mile long line of marten set trees were either cut down or bulldozed down in an effort to create a firebreak along a ridgetop. Additionally, one small logging camp burned, and the remains of two large, complex log mill camps with residential areas were discovered in the ashes after the fire.

The Hatchery Fire crossed the Wenatchee River at the location of a rock shelter site and burned with moderate intensity through this property. The Forest will be undertaking some data recovery at this site in order to salvage the scientific value of the remaining archeological data, before it becomes contaminated by leaching modern burned materials. Efforts to save an historic cabin went for naught when the intensity of the blaze forced fire fighters to abandon their efforts. The fire also burned through the remains of some historic logging chutes. Other cultural properties, such as pictograph sites and other rock shelters, appear to have escaped the fire with little effect.

The Round Mountain fire did not contain any previously recorded cultural properties and its effects have not yet been determined.

The Forest made better progress toward consideration of potential effects of projects on cultural properties. However, the damages suffered by cultural properties from not only the wildfires, but also the Forest Service's suppression efforts, clearly indicate increased participation by archeologists and cultural resource specialists as resource advisors to the fire overhead teams is needed.

Recommendations and Actions Include:

- a. Continued monitoring of active projects will ensure that cultural properties are protected from project activities. A review of all proposed projects should help in ensuring that potential effects on cultural properties are properly considered during the planning stages.
- b. The Forest is considering having a State-wide training session for cultural resource specialists and fire personnel in order to produce a plan for better participation in future fires and better site protection. The State Historic Preservation Office will be a co-sponsor of this session.

Monitoring Item - CULTURAL AND HISTORICAL SITE REHABILITATION

The goal is to rehabilitate damaged sites eligible for inclusion in the National Register of Historic Places. The monitoring question is:

- 1. For sites eligible for inclusion in the National Register of Historic Places, is appropriate stabilization or rehabilitation of damage being completed?***

The Forest still has not received capital investment funds to undertake the major rehabilitation and maintenance needed on all Civilian Conservation Corps (CCC) era picnic shelters, which have been determined eligible for listing in the National Register. For reasons unknown, the project which identified these needs has been dropped from the Region's capital investment program. During FY 1995 we will be resubmitting this project for funding; however, it may be several years before funds are allocated. Whether the picnic shelters can survive this long without the maintenance necessary, remains to be seen. The Forest will be applying for funds to perform the required maintenance actions needed for the picnic shelters.

Substantial progress was made in writing the contract provisions for rehabilitating the Salmon La Sac guard station, a two and one-half story log building listed in the National Register. The results of this contract will ensure continued stability of the structure in the foreseeable future. Future uses of the building will be examined once the contract is completed. Several private businesses have expressed an interest in leasing the building.

The Naches Ranger District held a District work day at the American Ridge Ski Lodge, built by the Civilian Conservation Corps in the 1930s. Volunteer scouts and CCC alumni that had originally constructed the lodge also helped. More than 70 people worked on this project with the scouts contributing over 200 hours of volunteer labor. Parts of the lodge were painted, broken windows replaced, and shakes were made by traditional hand tools and used to replace some missing siding. The remainder of the shakes made that day will be saved and used to replace the roof at a future date.

Much of the burned lands are scheduled to undergo cultural surveys this summer. After the results of these surveys are examined, it is expected that those properties needing protection from increased erosion or increased looting will be identified. Mitigation measures will then need to be determined.

Recommendations and Actions Include:

- a. Continued monitoring of the condition of the picnic shelters will enable us to assess if emergency measures are needed.
- b. This summer's surveys will provide data on the protection or stabilization measures needed for those cultural properties damaged from last summer's wildfires.

Monitoring Item - AMERICAN INDIANS AND THEIR CULTURE

- 1. For those trust resources identified in treaties with American Indians, what are their conditions and trends?*
- 2. Are sites of religious and cultural heritage adequately protected?*
- 3. Do American Indians have access to and use of Forest species, resources, and places important for cultural, subsistence, or economic reasons, particularly those identified in treaties?*

Please refer to the fisheries monitoring section for information on that trust resource. The 1855 Treaty signed with the confederated tribes and bands of the Yakama Indian Nation identified "the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed lands." It is generally assumed that the abundance of some species of wildlife, and most roots and berries used aboriginally as food, and the conditions of open meadows have all deteriorated substantially since the Treaty was signed. In recent years the Forest Service has worked actively to improve grazing conditions, but many areas are still infested with noxious weeds and exotic plants. Because of the changes wrought by decades of fire suppression and timber harvesting, the composition and quantities of species present within the Forest have changed considerably from the time of the Treaty. Root crops and berry areas have declined, but specific information on the amount of decline or their present condition is unavailable. The Forest does not presently have any methods in place to monitor the condition and trends in these resources.

Please refer to the beginning of this section for a discussion on the protection of cultural properties. Where known, religious properties are protected through avoidance by project activities. However, the Indians have been very circumspect in sharing information with us about areas currently used for religious purposes.

For all projects that consider alternatives which may impact trust resources or cultural heritage sites of American Indians, the appropriate Tribal representatives are contacted and asked for their comments and suggestions for managing these resources so as to achieve no effect. These consultations have occurred for projects which involved currently used root grounds, and for some unusual geologic formations which have significant meaning to the Yakama.

Representatives from both the Yakama and Colville have commented on and visited the data recovery excavations the Forest has undertaken through its Passport in Time program. Both Tribes have been very supportive of the Forest's heritage resources management program. Additionally, both Tribes are currently reviewing and will become signing parties to a Programmatic Agreement for heritage resources management for the fire recovery and restoration efforts.

The Wenatchee National Forest has cooperated fully with the Tribes when notified of access requests by them. Such requests made formally are extremely few and access is usually managed on a very informal basis. Usual and accustomed places for taking fish appear to be mostly located off of National Forest lands. No denials for access or exclusions have occurred. The Forest has not received any complaints from Tribal members concerning access to any part of National Forest lands.

Recommendations and Actions Include:

- a. Continue working closely with both Yakama and Colville to keep them informed about upcoming projects and to share information.

F. COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES

Monitoring Item - COORDINATION AND COMMUNICATION OF FOREST PROGRAMS WITH INDIAN TRIBES

The goal is to coordinate with appropriate Tribal representatives for all projects in which Indians may have concerns. Monitoring questions include:

- 1. Are American Indian rights being protected on National Forest lands?***
- 2. Are projects with activities, or areas of concern to Indians, being coordinated with appropriate Tribal representatives?***

In addition to the involvement in projects undergoing environmental analysis in 1994, the Yakama Nation also cooperated in other areas of concern to the Tribe. The Memorandum of Understanding (MOU) between the Yakama Indian Nation and the Forest Service continued to guide anadromous fish habitat management.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue cooperation and monitoring as scheduled.

G. SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH

The President's Forest Plan addresses several additional monitoring items for biodiversity, late-successional and old-growth forest ecosystems. The Plan contains evaluation questions to be addressed in monitoring. The questions are:

- 1. Is the forest ecosystem functioning as a productive and sustainable ecological unit?***
- 2. Is the use of prescribed fire or fire suppression maintaining the natural processes of the forest ecosystem?***
- 3. Are desired habitat conditions for the northern spotted owl and the marbled murrelet maintained where adequate, and restored where inadequate?***
- 4. Are habitat conditions for late-successional forest associated species maintained where adequate, and restored where inadequate?***
- 5. Are desired habitat conditions for at-risk fish stocks maintained where adequate, and restored where inadequate?***
- 6. Is a functional interacting, late-successional ecosystem maintained where adequate, and restored where inadequate?***
- 7. Did silvicultural treatments benefit the creation and maintenance of late-successional conditions?***
- 8. Will the overall conditions of the watersheds and provinces continue to be productive over the long term?***

Due to the fire season, no new monitoring addressing these specific questions was completed; however, some of these items are currently addressed (in different format) under various sections.

SENSITIVE PLANTS, BIODIVERSITY, OLD GROWTH

Monitoring Item - MAINTENANCE OF SENSITIVE PLANT POPULATIONS

The goal is to provide appropriate habitat to maintain viable populations or enhance populations of all threatened, endangered, and sensitive plant species. The monitoring question is:

1. Are sensitive plant species populations being maintained or increasing?

Essentially all NEPA documents address sensitive plants, and Biological Evaluations are completed for all ground disturbing activities to ensure that sensitive plants are protected.

Some monitoring of Wenatchee larkspur plots was completed, but not all before the fires started. Some showy stickseed was collected for propagation, and planted in the fall. Cuttings were taken of showy stickseed for propagation testing though the University of Idaho. Data was collected for several clustered lady's slipper and pine broomrape sites.

Recommendations and Actions Include:

- a. Continue to monitor existing plots and to standardize methodology.

Monitoring Item - BIODIVERSITY

The goal is to maintain native and desirable introduced or historic plant and animal species and communities. Provide all seral stages of all plant associations in a distribution and abundance to assure species diversity and viability. A desired future condition is to establish the local needs of management indicator species, rare species, and the proportion of seral stages that allows for natural diversity. Monitoring questions include:

- 1. Is the trend of biological diversity moving as estimated?***
- 2. Is the model for biological diversity being used on project and sub-drainage evaluations?***

The concept of biodiversity is the foundation of current land management philosophy in the Forest Service. Several initiatives have placed a major emphasis on biodiversity preservation. These include ecosystem management, use of native

SENSITIVE PLANTS, BIODIVERSITY, OLD GROWTH

species for restoration and rehabilitation, and watershed assessment and restoration. These initiatives have caused Forest Service managers to address issues on a landscape scale, to consider use of native plants in all revegetation activities, and to relate current and historic conditions in the watershed assessment process. Maintaining the species and processes within a natural range on a watershed level is a major step toward addressing biodiversity concerns in those watersheds.

Recommendations and Actions Include:

- a. Specifically address the new monitoring items developed in the President's Forest Plan.

Monitoring Item - OLD GROWTH ECOSYSTEMS

The goal is to maintain old growth forest ecosystems as needed for plant habitat, aesthetics, and biological diversity while still providing appropriate levels of timber for commodity use. The monitoring question is:

1. Is old growth acreage being retained at Forest Plan rates?

Old growth acreage is being retained at rates much higher than Forest Plan Standards. In 1994, old growth was only harvested on 11 acres. This is well below the Forest Plan volumes and acres.

Recommendations and Actions Include:

- a. Specifically address the new monitoring items developed in the President's Forest Plan.

H. WILDLIFE

Management Indicator Species Habitat

Management Indicator Species are plant or animal species whose population characteristics can be used to evaluate the effects of land and resource management practices on the habitats they use.

Monitoring Item - OLD GROWTH AND MATURE HABITAT

INDICATORS: spotted owl, pileated woodpecker, marten, and three-toed woodpecker

The goal of the indicator species program is to provide habitat to maintain viable populations of all old growth and mature habitat vertebrate species on the Forest. Monitoring questions for these species include:

- 1. Are Forest Plan allocated sites being maintained?***
- 2. Are established sites being used by indicator species?***

Northern Spotted Owl

Forest Plan allocated sites are not being maintained. In 1994, over 150,000 acres of National Forest lands were burned. Within the fires an estimated 30-62,000 acres of suitable spotted owl habitat was burned. About 17-18,000 acres were reduced below suitability and no longer support spotted owls. Insects and dying trees may reduce this remaining spotted owl habitat that was burned in 1994.

Five spotted owl pairs had their habitat destroyed and the pairs either burned in the fires or moved. Another seven pairs had some habitat burned or destroyed but appear to have enough habitat to continue to inhabit the site. Seven other pairs have had considerable suitable habitat destroyed by the fire and some damaged. These last seven pairs may not have enough habitat to survive more than one to five years. Monitoring will be completed to determine the effects of the fires. Some spotted owl habitat identified as critical was destroyed during the 1994 fires.

No suitable spotted owl habitat was eliminated due to timber sales. Reproduction was good for spotted owls in 1994. Spotted owl activity was found at all previously identified pair sites.

Some young of the year were captured and fitted with transmitters to see if there are barriers to dispersal. Most of the young died of many causes. As this is a research project, the particulars will not be addressed until that document is completed.

Recommendations and Actions Include:

- a. Monitor burned sites for owl use.
- b. Begin implementing the President's Forest Plan.
- c. Reduce risk of fires next to owl sites that are to be maintained.

Pileated Woodpecker, Northern Three-toed Woodpecker, and Marten

Many sites were burned in the 1994 fires. The number and effects have not been determined at this time. Analysis is being done to determine if any additional measures are necessary to protect these species. The assessment will be completed next year.

Monitoring of snags in pileated sites indicates that some sites do not have large snags (20+ inches DBH) as prescribed in the Forest Plan.

Information was not collected to determine if established sites are being used by indicator species.

Recommendations and Actions Include:

- a. A systematic monitoring program needs to be developed to monitor the network, and to determine how many network sites do not have the large snags required.

Monitoring Item - MOUNTAIN GOAT HABITAT

The goal is to maintain or increase populations and to provide animals for recreation enjoyment. The concern is to maintain or increase sub-populations.

- 1. Are Forest Plan allocated sites being maintained?**
- 2. Are established sites being used by indicator species?**

The Forest Plan allocated sites are being maintained. The fires of 1994 burned some acres of mountain goat habitat. The areas burned were relatively small and will probably resulted in an increase in quality of habitat. Monitoring is inadequate to determine population trends.

Recommendations and Actions Include:

- a. Monitoring needs to be more specific to determine if populations are increasing or decreasing.

Monitoring Item - DEER AND ELK HABITAT (Big Game Indicator Species)

The goal is to maintain habitat capability to support populations identified in the Forest Plan and provide animals for recreation enjoyment. Monitoring questions include:

- 1. *Are populations being maintained as predicted?***
- 2. *Is habitat capability being maintained?***

Populations of deer and elk are above the numbers predicted in the Forest Plan. This is due to high survival of young animals.

Some animals were killed in the 1994 fires. Fifty-four thousand acres of winter habitat was burned and was not available for providing food and cover for deer. About seven to nine thousand deer use this winter range.

A meadow research project on the Forest indicates heavy use by elk and livestock. This use is above the Forest Plan Standards and Guidelines and a downward trend in forage production is occurring.

Monitoring in other areas indicates that elk are using habitat to levels that exceed Forest Plan Standards and Guidelines before cattle or sheep grazing begins. This would indicate there are too many elk for the habitat capability.

White-tailed deer seem to be increasing.

Recommendations and Actions Include:

- a. Coordinate with range permittees, Washington Department of Fish and Wildlife and other resource objectives within the Forest Service to determine the numbers of elk, deer, and livestock that should be using the Forest.
- b. Identify and implement ways to bring the numbers in line with forage available.

- c. Establish and maintain a system of monitoring forage use by big game animals that can be used to determine population trends of big game.

Monitoring Item - PRIMARY CAVITY EXCAVATORS (Indicator Species for dead and defective trees)

The goal is to provide habitat to maintain viable populations. Maintain number, size and distribution of trees and snags to meet habitat capability objectives by management area. Monitoring questions include:

- 1. Are primary cavity excavator habitat and replacement trees being left in the proper numbers, sizes, and distribution?***
- 2. Is the habitat being utilized as expected?***
- 3. Are down trees being provided?***

When questions arose about snag longevity in the fire areas, it became known that models for predicting snag longevity and numbers to maintain potential populations have not been used often on other projects. Further review of green timber sales shows that snags are being assessed and left on other projects. But it is not known if enough snags of the right diameters were left, or that sufficient green trees were left for recruitment.

Surveys in green stands of dry habitat types indicate that some areas do not have enough large snags (20 inches DBH and larger) to meet the 40 percent potential population goals. The same surveys indicate there is an abundance of small dead trees. The results are an abundance of habitat for some species and low habitat for other species. Species such as pileated woodpeckers and flamulated owls are in low numbers in the dry habitat types.

The fires of 1994 killed almost all trees on 40-80,000 acres. These acres will not maintain 40 percent or greater potential populations of primary cavity excavators for the next ten to 60 years. This is because most of the snags created by the fires are less than 20 inches DBH and therefore will remain standing less than ten years. Only two to four dead trees per acre larger than 20 inches DBH were created that will be maintained snags for the next 50 years.

If the dry habitat types on the Forest continue to be burned by large fires in a short time (20 to 40 years) the population of primary cavity excavators in the dry type will not be maintained at 40 percent populations across the Forest.

Another 80-120,000 acres burned in 1994 but there are green trees left after the fires. These acres have abundant populations of snags now. It is not known how recruitment of snags for the next ten to 50 years will take place. Some of these trees will remain alive and some may be killed by insects. The effects on primary cavity excavator habitat over the next ten to 50 years is uncertain.

In trying to determine the effects of the fires, it has become apparent that little information is available on the longevity of snags in habitats like exist on the Forest. This lack of information adds to the uncertainty of maintaining populations of primary cavity excavators for the future.

In trying to predict longevity of snags for the fires it also became apparent that there are three general types of habitat for primary cavity excavators. There is high elevation habitat that does not provide large snags (over 20 inches DBH) very often. There is dry habitat (ponderosa pine, Douglas fir, and dry grand fir series) that provides large snags slowly. Also, there is mid elevation habitat (wet grand fir, western hemlock, and silver fir series) that provides many large snags fairly rapidly. These types have different species of wildlife and plants, and management should be different in these habitats. It also became apparent that we had not previously considered these habitat types to be different for management of primary cavity excavators.

No data was collected this year to determine if habitat is being utilized as expected.

Small down trees are being provided in abundance, but large down trees may be deficient. Further information needs to be gathered.

Recommendations and Actions Include:

- a. Prepare a province plan with inventories showing where the three habitat types for primary cavity excavators exist, their general condition and management options.
- b. Prepare a map of the three habitat types and quantify the existing conditions of habitat for primary cavity excavators in watershed assessments. The information in the watershed assessments in 1994 did not assist much in most assessments.
- c. Complete a review on the predictions of snags for green timber sales. This review would determine the prediction accuracy and the actual numbers of snags left now and for the future.

- d. Since ecosystem management has become the goal of the Forest Service, resource areas other than wildlife have become interested in maintaining snags or dead down trees. The models available were developed for wildlife and may or may not provide for other resources. Therefore, guidelines should be developed that manage for snags and down dead trees for the ecosystem.
- e. Gather information on the longevity of snags created from fires and from other causes. This would help predict the effects of management, and in making decisions for projects.
- f. Gather information on the use of snags by wildlife for the three habitat types; then, more accurate models and effects determinations could be made.
- g. Inventory projects for snags and dead down trees so effects of these projects can be quantified and a better determination of potential populations can be made.

Proposed, Endangered, and Threatened Species

Endangered and threatened wildlife species found on the Forest are the bald eagle, peregrine falcon, grizzly bear, gray wolf, northern spotted owl, and marbled murrelet.

Monitoring Item - BALD EAGLE HABITAT (T.E.& S WILDLIFE)

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Monitoring questions include:

- 1. Are existing nest sites producing young as anticipated?**
- 2. Are nest, roost, and perch sites being maintained?**

Nest sites are not producing young as anticipated. The young produced were less than one per active nest.

One potential nest site, one roost and a number of perch sites were burned during the 1994 fires. Inventories of these sites have not been completed. Potential and known nest sites are being managed for bald eagles.

Recommendations and Actions Include:

- a. Monitor nest sites for reproduction, and search for unknown active nest sites.
- b. Inventory sites burned and determine their condition and the need for further management.

Monitoring Item - PEREGRINE FALCON (T.E.& S WILDLIFE)

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Monitoring questions include:

- 1. *Are recovery sites being maintained?***
- 2. *Are sites occupied?***

Both known nest sites were maintained in 1994. Two sites are known to have occupancy and produced young. There are likely two to six more nest sites on the Forest.

Recommendations and Actions Include:

- a. Monitor active nest sites yearly.
- b. Inventory for additional nest sites.

Monitoring Item - GRIZZLY BEAR (Threatened Species)

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. The monitoring question is:

- 1. *Are guidelines for the North Cascade Grizzly Bear Recovery Area being implemented as they become established?***

A draft recovery plan is prepared but has not been signed.

Recommendations and Actions Include:

- a. A decision on finalizing the recovery plan is needed; then, the Forest can organize and begin planning for implementation.

Monitoring Item - GRAY WOLF HABITAT (Endangered Species)

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. The monitoring question is:

1. Is habitat capability on an increasing trend?

Big game populations are increasing. This trend is unlikely to be maintained as there appears to be problems maintaining forage quality and quantity for big game. See deer, elk, mountain goat, and bighorn sheep monitoring for population trends.

Populations of wolves are maintaining or increasing. There were a number of wolves seen in 1994; the sightings were not quantified for 1994 as for past years (not confirmed).

Recommendations and Actions Include:

- a. Inventory to locate dens and verify wolf use of the Forest.

Monitoring Item - MARBLED MURRELET

A murrelet has been seen and verified using the west edge of the Wenatchee National Forest. Surveys have not located other birds.

Other species of murrelets have been sighted within and around the Forest.

Recommendations and Actions Include:

- a. Continue to monitor within the range of the species.

Monitoring Item - HABITAT FOR SPECIES IDENTIFIED AS CANDIDATES FOR THREATENED STATUS

Species proposed for listing as threatened or endangered are identified as “sensitive” species within the Forest Plan. Sensitive species include bighorn sheep, Townsend’s big-eared bat, Canadian lynx, California wolverine, ferruginous hawk, Swainson’s hawk, and long-billed curlew. The common loon, harlequin duck, red

legged frog, and the Western pond turtle are Regionally sensitive species that have recently been located on the Forest. The State of Washington has identified some rare species, and the Fish and Wildlife Service has some species being considered for Federal listing.

The goal is to enhance habitat to prevent the need for listing species as Federally Threatened or Endangered. The monitoring question is :

1. *Is habitat capability on an increasing trend?*

Bighorn Sheep

Wildfires decreased habitat for the short term, but likely increased habitat for the long term.

Domestic sheep are interacting with bighorn sheep and the bighorn populations may be decreasing or holding even as a result of diseases from this interaction. There is expected to be competition for forage between bighorn sheep and domestic livestock grazing (sheep and cattle) on the Forest.

Timber sales within bighorn sheep kidding areas were curtailed during the reproductive period to meet Forest Standards.

A study is being done in cooperation with the Washington Department of Fish and Wildlife to determine habitat use by bighorn sheep.

Recommendations and Actions Include:

- a. Resolve the conflicts in direction for forage and interactions between bighorn sheep and domestic livestock. Continue to study with Washington Department of Fish and Wildlife.
- b. Prepare plans for managing bighorn sheep. Address habitat needs and existing conditions for bighorn sheep in watershed assessments and NEPA documents for grazing allotments. Inventory habitat and species to determine their range.

Townsend's Big-Eared Bat

The habitat and populations in Boulder Cave are being monitored and seem to be improving. Where the population is going to reproduce is still unknown. A pregnant female was found within a few miles of this cave in 1994. The reproductive site cannot be maintained until its location is known.

Two big-eared bats were found at other locations. There may be other caves and colonies on the Forest that need to be located and maintained.

Recommendations and Actions Include:

- a. Locate the reproductive site or sites for Boulder Cave.
- b. Inventory habitat and species to determine their range.
Report sightings of these species and load into Wildobs data base.
- c. Develop a map of habitat by quantity and quality so trends can be determined.

Canadian Lynx

The fires burned some lynx habitat in 1994. The intensity of the fires and size of the areas burned suggests that habitat may have been increased. Further analysis is needed.

Recommendations and Actions Include:

- a. Inventories are needed throughout lynx habitat to determine if populations are present and their condition.
Report sightings of these species and load into Wildobs data base.
- b. Develop a map of habitat by quantity and quality so trends can be determined.
- c. Habitat plans are needed for the province to determine which watersheds need habitat change to improve conditions.

Ferruginous Hawk

The fires affected habitat, but to what extent is unknown. Sightings are being loaded into a computer data base program (Wildobs), so this will assist in providing populations and locations.

Recommendations and Actions Include:

- a. Inventory habitat and species to determine their range.
Report sightings of these species and load into Wildobs data base.

- b. Develop a map of habitat by quantity and quality so trends can be determined.

Common Loon

Records are being kept of sightings. Protection projects for nesting areas are being developed.

Recommendations and Actions Include:

- a. Inventory habitat and species to determine their range.
Report sightings of these species and load into Wildobs data base.
- b. Develop a map of habitat by quantity and quality so trends can be determined.

Harlequin Duck

Riparian habitat is being protected across the Forest. The fires reduced the effectiveness of some riparian habitat.

Recommendations and Actions Include

- a. Inventory habitat and species to determine their range.
Report sightings of these species and load into Wildobs data base.
- b. Develop a map of habitat by quantity and quality so trends can be determined.

Red-legged Frog and the Western Pond Turtle

Domestic livestock graze in riparian habitats that these species use. Roads and timber management are sensitive to these habitats and are not reducing their amphibian habitat.

Recommendations and Actions Include:

- a. Inventory habitat and species to determine their range.
Report sightings of these species and load into Wildobs data base.
- b. Develop a map of habitat by quantity and quality so trends can be determined.

Fisher

Due to fire activities no information was collected and no recommendations have been developed.

OTHER WILDLIFE

Monitoring Item - HAWK AND OWL NEST SITES

The goal is to maintain viable populations and provide animals for recreation enjoyment. The monitoring question is:

1. Are nest sites being protected during implementation of habitat disturbing activity?

Nests are being protected when located. Many nest sites were destroyed by the fires.

Recommendations and Actions Include:

- a. Increase pre-activity surveys to locate nests, and keep better records of located nest sites.

I. TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES

Monitoring Item - TIMBER OFFERED (Allowable Sale Quantity (ASQ) and Timber Sale Program Quantity (TSPQ))

The goal is to achieve planned and assumed volumes of timber sold annually and for the planning period in ASQ and TSPQ. Monitoring questions include:

- 1. *Is the Forest offering the cubic foot volume (board feet in first decade) of chargeable timber established by the plan ASQ?***
- 2. *Is the Forest offering the cubic foot volume (board feet in first decade) of non-chargeable timber necessary to achieve the estimated TSPQ?***

In 1994, there were 16.1 million board feet of timber sold. There were several reasons for not selling the volume at the indicated Forest Plan level.

As a result of the President's Forest Plan the Forest now has a Probable Sale Quantity (PSQ). The PSQ is a rough approximation because of the difficulty associated with predicting actual timber sale levels over the next decade. It is also an approximation given the discretion that agency land managers possess in administering plans and deciding when and where to offer timber sales, as well as the complex nature of many of the Standards and Guidelines. The current PSQ is 24 million board feet. The allowable sale quantity for the Forest will be recalculated at the time of the next plan revision.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - TIMBER HARVEST UNITS (Size, Shape, and Location)

The goal is to manage vegetation cover to meet direction on size of openings created by National Forest timber harvest. The monitoring question is:

- 1. *Are the Forest Plan Standard and Guidelines regarding the size and dispersal of openings and condition of adjacent vegetation (e.g., height of trees in adjacent areas) being appropriately implemented?***

TIMBER OFFERED, HARVESTED, SILVICULTURAL ACTIVITIES

All timber harvest activities on National Forest land met the direction on size of created openings.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - TIMBER HARVEST

The goal is to ensure that regeneration harvests are not prescribed for areas where average annual growth has not generally reached culmination of mean annual increment. Monitoring questions include:

- 1. Are stands being harvested at an age and condition that produces the expected growth measured on an average annual cubic foot basis?***
- 2. Is the amount of volume removed consistent with amounts sold?***

In general, all stands scheduled for regeneration harvest were at or beyond culmination of mean annual increment. Thirty-two and a half million board feet of timber was harvested on 2,493 acres of the Wenatchee National Forest.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - SILVICULTURAL PRACTICES

The goal is to ensure that silvicultural prescriptions are appropriate, effective, and consistent with resource objectives for each management area. Monitoring questions include:

- 1. How many acres of each planned silvicultural practices have been accomplished?***
- 2. Have silvicultural prescriptions met objectives set for each management area?***

TIMBER OFFERED, HARVESTED, SILVICULTURAL ACTIVITIES

3. Are managed stands growing at the rates estimated by Forest Plan yield models?

Timber sales monitored in 1994 for silvicultural practices included some in the preparation stage, some in the sold but not cut stage, and some in the reforestation stage. Monitoring for growth and yield is difficult on recent sales; however, some estimates of expected yield were made on sales monitored to show a trend.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - REFORESTATION

The goal is to minimize the amount of time between the removal of existing trees and reforestation with desired species. Monitoring questions include:

- 1. Is adequate tree stocking for each management area achieved within the time frame established with the desired silvicultural method?***
- 2. Have adequate numbers of trees of desired species been established to realize optimum growth for the management area?***

In FY 1994, an estimated 1.1 million tree seedlings were planted to reforest 3,119 acres. The first-year plantation survival from 1994 reforestation was approximately 86 percent. Third year survival was 88 percent.

The Forest is monitoring the average elapsed time from harvest to reforestation. The average time is less than three years. Planting of some individual units is delayed because of the limited number of burning days allowed for harvest slash due to air quality concerns.

In addition, 1,836 acres of timber stand improvement (TSI) work was accomplished. The majority of the improvements consisted of thinning to remove excess trees, with some fertilization and pruning.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

TIMBER OFFERED, HARVESTED, SILVICULTURAL ACTIVITIES

Monitoring Item - LANDS NOT SUITABLE FOR TIMBER MANAGEMENT

The goal is to verify that technology and/or other information has not been developed to justify reclassifying lands from a “not suitable” status to “suited for timber management”, or vice versa. Monitoring questions include:

- 1. Have the lands that were identified in the Plan as not being suitable for timber management now become suitable for timber management?***
- 2. Is the suitable/not suitable land classification accurate as identified in the Forest Plan data base?***

Suitability of forested land to sustain commercial crops of industrial wood is being field verified within new timber sale planning areas. The primary consideration is the ability of a site to be reforested within five years. Ranger Districts will update suitable acre inventories on the Geographic Information System as the program becomes operational. Anticipated Forest Plan amendments will also affect the suitable data base.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

J. SOIL, WATER, FISHERIES AND RELATED WATERSHED MANAGEMENT

Monitoring Item - MAINTENANCE OF LONG-TERM SOIL PRODUCTIVITY

The goal is to manage the soil resources by implementing management practices that maintain or enhance productive soil nutrient and water cycles. The monitoring question is:

1. Is soil productivity being protected?

According to 1992-1993 detrimental soil disturbance monitoring, nearly all ground based (tractor) operations exceeded Forest Plan Standards.

Recommendations and Actions Include:

- a. Discontinue the practice of combined timber logging and mechanical (tractor) piling on ash/pumice and other susceptible fine texture soils.
- b. To the extent practical, utilize timber sale contract provisions to designate and use the same skid trails on multi-entry activities to minimize compaction and other soil disturbance.
- c. Continue monitoring tractor logged and tractor logged/piled areas to see if they are within Forest Plan Standards.
- d. Restore sites that do not meet Forest Plan Standards and Guidelines by appropriate methods and techniques including ripping and seeding skid trails and landings and by avoiding practices that will cause further degradation.
- e. In addition to bulk density, point sampling of soil textures, organic duff, nutrient, and organic matter content should be considered. Monitor surface erosion parameters, such as ground cover, and the effectiveness of drainage features and road closures.
- f. Better records are needed to show site condition during activities and to document operations. Assemble and integrate knowledge of past activities on each site and incorporate it into project analysis.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Monitoring Item - FISH/RIPARIAN STANDARD AND GUIDELINE IMPLEMENTATION

- 1. Are Standards, Guidelines and related BMPs for fish habitat and riparian areas as defined in the Forest Plan being applied in the design and execution of timber sales, watershed restoration, and other projects where fish/riparian Standards are a concern?***
- 2. Would these projects also comply with direction in the President's Forest Plan?***

The Forest Leadership Team chose to make the watershed restoration projects ('jobs in the woods') the focus of the implementation monitoring for this Fiscal Year. Due to the intense and extensive fires on the Forest no implementation monitoring was actually carried out.

Recommendations and Actions Include:

- a. Although no implementation monitoring was conducted, this type of monitoring is of critical importance. Based on the monitoring results from 1993, the recommendation is to subject a representative percentage of all projects and a high percentage of timber sale and watershed restoration projects on the Forest to implementation monitoring.
- b. Landform and soil mapping, analysis, and interpretation is an important technical element of project level planning and should be included in all plan development and execution.
- c. Specific riparian management objectives were not always identified as directed by the Forest Plan. Continued implementation monitoring should be conducted to ensure that these objectives have been identified.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Monitoring Item - EFFECTIVENESS OF RIPARIAN STANDARDS AND GUIDELINES

1. *Are Standards and Guidelines that describe Desired Future Conditions for specific riparian areas/fish habitat being met?*

From 1989 to 1993, over 900 miles of stream (including side channels) were surveyed using the Region 6 stream survey protocol. In 1994 approximately 122 miles were surveyed. In addition, 415 sediment samples were taken in 14 streams on the Forest. Temperature recording thermographs were placed in 30 streams to make continuous records of stream temperatures (four devices failed) and maximum-minimum registering thermometers were placed in 53 streams.

The following is a summary of the compliance of the sampled streams on the Wenatchee National Forest with the Forest Plan Standards and Guidelines (for wood and pools only 1993 streams are included, see footnote for a description of the Standards and Guidelines).

Large Wood Pieces: Thirty-four percent of stream miles met the small size Standard, 54 percent met the large size Standard, and 30 percent met the combined Standard.

Pools: None of the stream miles met the pool Standard when the three foot depth requirement was considered. Removing the depth requirement results in six percent compliance.

Fine Sediment: The percent of the stream reaches meeting the Standard is the method to assess the degree of compliance with the Standard. The percent of stream reaches meeting the Standard, as determined using the revised analysis method (see the 1993 Fisheries and Watershed Monitoring Report for the details of this revision) is:

Year	1990	1991	1992	1993	1994
Percent meeting	74%	81%	65%	60%	63%

The above figures cannot be used to create a trend in fine sediment over time, because in some cases different streams were sampled between those years. However, following the same stream reaches over time is a valid way to track trends: in the 19 stream reaches sampled each year since 1991 68 percent, 63 percent, 53 percent, and 58 percent of the stream reaches met the Standards in 1991 through 1994 respectively. A caution level of fines between 15 percent and 20 percent has been proposed by other agencies. For those same 19 stream reaches sampled each year since 1991,

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

32 percent, 11 percent, 11 percent, 11 percent were below the caution level for 1991 through 1994 respectively.

Temperature: Twenty-four out of 26 sampled streams (92 percent) exceeded the maximum daily water temperature Standard for 1192 stream days and exceeded the average seven day max for 1872 stream days, as measured by thermographs. The number of days exceeding each Standard gives an indication of how serious the high temperatures were. The greater the number of days the more stress cold-water adapted aquatic life is subjected to.

Year	# streams exceeding std/Total # streams sampled	# stream days exceed daily max	# stream days exceed avg 7 day max	# stream days sampled
1990	03/03 (100%)	36	64	445
1991	09/12 (75%)	153	318	2065
1992	10/11 (91%)	351	478	3492
1993	13/17 (76%)	264	472	1863
1994	24/26 (92%)	1192	1872	4382

For the max-min data in 1994, 57 max-min thermometers were placed in 53 streams, with 53 thermometers providing usable data. Twenty-one streams (22 thermometers) exceeded the daily maximum Standard on at least 42 days.

The overall sediment are skewed over time toward streams that have high sediment levels. In the early years of the sediment sampling if a stream was found with low sediment levels, then it was dropped from further sampling. Thus we do not have any understanding of what is happening to levels in lower sediment streams.

The sediment results comparing the same reaches show some improvement in 1994 from 1993 levels. The fine sediment levels represent a dynamic balance between the amount of fine sediment put into streams and the ability of the stream to move that sediment out. It is likely that some of the year to year changes are due to the presence or absence of large flushing flows that can move the fine sediment that is input over the year. Flushing flows have been infrequent over the sampling period due to a continued drought.

The increase in the number of days of high temperatures in 1994 reflects both more streams sampled with temperature recorders and the effects of a continued drought with low flows and high air temperatures. In three streams, all of which had

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

high numbers of days exceeding the temperature Standards, two or three recorders were used and those multiple observations show in the table above.

The results for wood and pools were very sensitive to the definition of each parameter. Slightly changing the definition of large woody debris or the definition of a pool resulted in large changes in percent compliance. The biological or morphological significance of each parameter definition needs to be more precisely determined.

This definitional sensitivity was clearly visible when comparing other sets of proposed Standards. Many of the differences in compliance were due to differences in the definitions of what constituted large wood or a pool.

In addition, it was clear that one set of Standards and Guidelines was not appropriate across all the diverse stream/watershed types found on the Forest. Even in many unimpacted areas the streams did not meet Standards. For example, a stream reach through an alpine meadow may not have large woody debris due to the limited potential for any wood recruitment. Standards that are appropriate to the potential of an area need to be developed and applied.

Such a project to develop watershed-specific Standards is well underway on the Forest. Our goal is to develop watershed specific parameters which will describe healthy systems based upon physical characteristics (land form, geology, soils, valley and channel-types precipitation, etc.); biological characteristics and objectives (riparian vegetation, fish distribution, and production potential); and will identify the processes linking the upslope to the channel, as well as the physical to biological. This is expected to raise the percent of stream miles that meet the revised Standards. The end result would be amendments to the current Forest Plan Standards.

In 1993, a total of 30 stream channel cross sections were surveyed on the Cle Elum River, the lower Chiwawa River and Mission Creek. In 1994, surveys were completed on the South Fork of the Manashtash, Devil's Gulch, Sand Creek, and the Little Naches. The total to date is 174 monumented survey stream cross sections on 14 stream reaches.

Analysis of this data continues and is being incorporated into various watershed analysis efforts. Plans for 1995 are to survey an additional five stream and river systems. Also new for 1995 is the incorporation of this hydrologic survey into a riparian disturbance ecology research project being initiated by scientists at the Wenatchee Forestry Sciences Laboratory. The hydrologic survey will parallel other resource investigations in vegetation, ecology, fire ecology, and forest insect and disease. This larger effort is a two year project to characterize riparian disturbances for various landtype subgroups of the Forest.

In some cases the lack of compliance with the Standard is due to past or current management practices in an area. For current cases the management practice needs

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

to be modified or curtailed. In other cases the lack of compliance is due to an inappropriate Standard for the potential of an area. This latter situation is being addressed by the watershed grouping project described above. There is no estimate available of what percentage of the current non-complying stream reaches fall into each of the above categories.

If a stream reach is below the Standard then the only projects allowed are those which do not degrade the attribute any further, or which do not slow recovery unless it can be demonstrated that the potential in the area is such that the Standard is inappropriate.

Recommendations and Actions Include:

- a. Continue to develop Standards based on the potential of the watershed.
- b. Ensure that projects do not contribute to any further degradation below the current Standards. The implementation monitoring is a key element in keeping projects consistent with regulations and direction.
- c. Continue monitoring.

Footnote: The Wenatchee National Forest Plan Standards and Guidelines for stream structure and function are as follows: For large woody debris the Standard for fish-bearing streams is to have a minimum of 100 pieces per mile of stream with at least 20 percent of those being large size ≥ 50 feet in length and ≥ 20 inches in diameter. The small size woody debris needs to be ≥ 50 feet in length and ≥ 12 inches in diameter. The pool Standards are as follows:

For fish-bearing streams with a gradient less than three percent, one primary pool per six bankfull channel widths; in fish bearing streams with a gradient \geq three percent, one primary pool per three bankfull channel widths. A primary pool occupies ≥ 50 percent of the low flow channel width and has a maximum low flow depth \geq three feet. In non-fish-bearing, class III streams there is no depth requirement for the pools and in class IV streams there is no numeric pool Standard. The fine sediment Standards call for ≤ 20 percent fine sediment ≤ 1.0 mm in diameter in spawning gravels in forest streams. The water temperature Standard for class I, class II and fish-bearing class III streams calls for a maximum daily temperature $\leq 61^{\circ}$ °F and a average 7-day maximum $\leq 58^{\circ}$ °F.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Monitoring Item - FISH MANAGEMENT INDICATOR SPECIES (MIS) POPULATIONS

1. Are viable populations of Management Indicator Species (MIS) being maintained?

Fish chosen for MIS on the Wenatchee are anadromous salmonids, bull trout, and cutthroat trout. Anadromous salmon and steelhead stocks spawning within the Forest boundaries are considered in the Forest Plan to be "at-risk" fish stocks. They are also American Indian trust resources. In 1994 anadromous runs of salmonids were among the lowest ever recorded throughout the Pacific Northwest. Anadromous runs on the Forest (as estimated by dam counts), Yakama Indian Nation redd counts, and Public Utility District spawning surveys, fit the overall general 1994 trend and were among the lowest recorded since estimates begun in the 1950's (for the Wenatchee River) and 1930's (for all mid-Columbia runs).

Cutthroat trout are primarily monitored for presence/absence and trends are not known. Cutthroat populations on the Forest are estimated to be of strong or moderate viability.

The Wenatchee National Forest and the Washington Department of Fish and Wildlife (WDFW) have been cooperatively monitoring bull trout since 1989. The following approach to bull trout monitoring has been developed:

1. Conduct presence/absence surveys to determine distribution and relative abundance.
2. Establish index streams based on the distribution surveys to monitor population trends.
3. Conduct habitat monitoring through the Level II Stream Inventory Program.
4. Once distributions are fairly well established, determine juvenile rearing densities and habitat preference in order to establish population goals and ensure we are monitoring the correct habitat components.

In 1994 spawning surveys were conducted on ten streams on the Forest. Nine of those streams were index streams that have been monitored every year since 1989 (number two on the above list). These surveys are not designed to estimate the total population but are intended to track changes over time. The trend in the total redd count for those nine streams is as follows:

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Year	1989	1990	1991	1992	1993	1994
Redd Count	283	217	622	536	485	490

These figures represent finalized numbers from the WDFW for 1993 and earlier, and so differ from the numbers reported last year. The 1994 total represents 21 percent decrease from the 1991 total, which was the highest total found over all the years of the survey. Two streams out of the nine contained 71 percent of the total redds with all but one of the rest of the streams currently containing fewer than 20 redds. Several of the populations are isolated behind impassable dams which severely limit the resilience of the population. Threats to the various populations include human disturbance, poaching, non-native fish, and problems with habitat quality, water quality, and water quantity.

While the overall numbers have declined since 1991, the individual streams have had mixed results. Most of the populations in the Yakima River basin are at their recorded high count although they have only a handful of redds. The exceptions are the Deep Creek (Bumping Lake) population which is down 86 percent from its recorded high in 1991 and the Indian Creek population which is currently at its highest level with 179 redds. The population in the South Fork Tieton River has only been surveyed three times (and so is not included in the 1989 to present totals above), but the 1994 count represents the high count for that area with 169 redds. Most of the Wenatchee River populations have declined by 29 to 75 percent since their peaks in 1991 or 1992. The one exception is the Panther Creek population which is at the highest point of record. The Entiat River population has declined by 21 percent from the high in 1991, although numbers are small.

It is important to ensure that no projects take place that might adversely affect habitat and/or the fish themselves. With only two streams representing such a large fraction of the surveyed redds, the small number of redds on most streams, and the isolation of many populations, bull trout are vulnerable to man-made or natural disturbances on the Forest.

Recommendations and Actions Include:

- a. Continue to cooperatively monitor bull trout spawning populations.
- b. Ensure that no management actions adversely affect habitat or populations. Implementation monitoring is a key element in keeping projects consistent with the regulations and direction.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Monitoring Item - COLUMBIA RIVER BASIN ANADROMOUS FISH POLICY IMPLEMENTATION AN SALMON SUMMIT ACTION PLAN COMMITMENTS

1. *Are the actions in the Policy Implementation Guide (PIG) for Columbia River Basin (CRB) Anadromous Fish Habitat being implemented as planned?*

Establish Objectives: We have completed applying the Regional Smolt Habitat Capability Protocol on two of our 25 Forest watersheds. We are not planning to apply the protocol to all the watersheds in the near future. The Districts are using a related protocol to establish outputs and objectives for habitat rehabilitation work. In addition, four of six Districts performed a watershed analysis to determine the current conditions and define desired conditions, based on current information regarding physical and biological processes. Smolt habitat capability was to be estimated for those watersheds as part of watershed analysis, but due to lack of funding, efforts needed for “jobs in the woods”, and fire activity, the work has not been done or a related method was used.

With current funding levels, it is most important to refine our understanding of watershed processes, institutionalize a watershed approach to ecosystem management, develop, implement, evaluate, and report on monitoring programs and continue habitat inventory and desired future condition analysis. The Yakama Indian Nation has agreed with our priorities.

Desired Future Conditions (DFC): The Wenatchee National Forest established DFCs consisting of minimum numeric Standards in the Forest Plan. We are currently working to refine these Standards based upon the physical and biological potential of watersheds. Our goal is to develop watershed specific parameters which will describe healthy systems based upon physical characteristics (landform, geology, soils, valley and channel-types, precipitation, etc.), and biological characteristics and objectives (riparian vegetation, fish distribution, and production potential). Another part of our goal is identify the processes linking the upslope to the channel, as well as the physical to biological. Recognizing that a minimum value is inadequate to fully protect resources, we plan to redefine the DFCs to include a distribution of values rather than a minimum value.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

In 1994, progress was slowed by the tremendous workload in responding to the extensive fires and data needs for the individual watershed analyses. However, we did further develop our GIS layers. We further refined the analysis process necessary to develop watershed specific parameters. The DFC refinement process is coordinated with PNW.

This same refinement of numeric DFCs was to be done in each watershed as part of watershed analysis; however, due to the workload and the available time and personnel, it did not happen for any of the watershed analyses in progress in FY 1994. The increase in the number of watershed analyses underway on each District will only add to the difficulty of completing a refinement of DFCs as part of each watershed analysis.

Inventory: Stream inventories were completed on 122 miles of stream in FY 1994.

Monitoring: The Forest Plan establishes Monitoring Guidance in Appendix "F". For the past three years, Forest watershed and fisheries personnel have met with representatives of the Yakama tribes in the winter/spring to review the previous years' monitoring results. Based upon the results, Appendix "F", new information, and final budget, a monitoring plan for the upcoming year was developed.

Riparian Acquisition Opportunities: There are numerous private parcels with riparian habitat within the Forest boundary. We identified priority areas and parcels within those areas where our inquiries have produced a positive response to the potential for purchase. When there is a positive response, we proceed with an appraisal and adjust LWCF priorities as necessary (LWCF is the Land and Water Conservation Fund Act of 1964 which allow for the expansion of federal land acquisition programs). We identified eight parcels for potential acquisition. We completed two purchases (189 acres) with .9 miles of anadromous stream frontage, and two appraisals (one of which the landowner was unable to sell). The second appraisal should result in a purchase in FY 1995.

Livestock Management: Based on Forest administration/monitoring the following actions were taken in 1994: 1) two allotments were temporarily closed for the 1994 season, and 2) two allotments had the number of animals reduced and the season shortened. AMP revision was planned for two of the 18 allotments that front anadromous streams but none were completed in FY 1994. Funding, personnel shortages, and the fires limited our ability to monitor allotments and revise AMPs in 1994. Seven permits need to have a NEPA analysis done before they can be renewed in December 1995. The preliminary work for the NEPA analysis was begun in FY 1994.

Mining Management: The majority of the mining activities on the Forest are in the Swauk and Peshastin Creek drainages. Numerous small claims are located within the drainages. Beginning in 1993, Districts monitored mining operations to

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

determine if operations were within their plans. The monitoring for 1994 was reduced due to the heavy workload imposed by the fires. Of 17 claims monitored in 1994, one had an erosion control problem which was not a direct threat to streams, and two had inadequate stream protection due to occupants living in the riparian zone. Actions are underway to improve all those problems. Of the three unresolved problems from 1993, two have been fully resolved and one has improved but is still a problem for 1994. For this last case legal action will be undertaken.

Diversion Screening and Man-Made Barriers: The Forest completed an inventory of diversions in early 1992 and none were found to need screening, nor were they creating barriers (other than the large dams in the Yakima River drainage which fall into another category). The vast majority of irrigation and water diversions are downstream of the Forest boundary. In 1994, plans were underway to contribute time and materials to enable the State to resolve two long term fish passage problems in the Entiat drainage (mainstem Entiat and mainstem Mad River). Those passage improvements were completed in FY 95.

An Action item for 1994 was to ensure, annually, that the few screens on the Forest are functioning properly. The workload imposed by the fires and "jobs-in-the-woods" prevented this evaluation.

Other barriers, such as road crossings, are inventoried during stream and road condition surveys. If a barrier is found, it is recorded and will be added to the Fish and Watershed Improvement Data Base.

Habitat Improvement: Fifteen miles of anadromous stream were improved.

Roads: One mile of road was closed, seven miles were obliterated, and 56 miles were reconstructed (these do not represent all Forest roads, for these figures please refer to section L. ROAD MANAGEMENT). These were the road closures, obliterations, and reconstructions done to benefit Watershed and Fish Resources, either through reduction of sediment or improving watershed function in anadromous watersheds.

Direct Riparian Rehabilitation: A total of 15 acres of rehabilitation was accomplished. As previously mentioned, the road work discussed was that which will benefit anadromous fish. Projects included reconstructing an ORV bridge to allow removal of two ORV fords and riparian shrub planting and seeding.

In 1994 the Forest dramatically stepped up the watershed analysis process. Each District undertook a process of identifying current watershed/fish habitat conditions, determining a desired condition based upon the potential of the biological and physical properties; and finally, identifying management actions needed to alter or maintain the desired condition. This type of approach is consistent with the President's Forest Plan, and we feel will help us better manage fish and watershed resources.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Interpretation and Education Sites: Two interpretative sites were established. Two informational documents were developed, four news releases were distributed, and six internal presentations and 33 external presentations were conducted.

Recommendations and Actions Include:

- a. Continue the progress the Forest is making to refine our understanding of the watershed processes.
- b. Institutionalize a watershed approach to ecosystem management.
- c. Continue to develop, implement, evaluate, and report on the monitoring program.
- d. Continue our habitat inventory and Desired Future Condition analysis.

Monitoring Item - AQUATIC HABITAT OBJECTIVES

1. Are stream restoration and habitat improvement projects meeting Aquatic Habitat Objectives as stated in the Forest Plan, Policy Implementation Guide (PIG) and Salmon Summit?

The Forest had only one instream improvement project directed specifically to fish production. Due both to the emphasis on understanding watershed processes through watershed analysis and the workload due to “jobs in the woods” and the fire activity, no monitoring activity occurred.

Recommendations and Actions Include:

- a. Emphasis on watershed analysis began in FY 1994. We need to continue developing site-specific Standards for habitat conditions that reflect existing conditions and a definition of desired future conditions that are based on key hydrologic processes. As these site-specific Standards are developed, they will be incorporated into the Forest Plan and provide direction for short and long term restoration.

SOIL, WATER, FISHERIES, WATERSHED MANAGEMENT

Monitoring Item - AQUATIC ECOSYSTEMS

- 1. *Is the ecological health of the aquatic ecosystems recovering or sufficiently maintained to support stable and well-distributed populations of fish species and stocks?***

Watershed analysis was utilized in 1994 to determine ecological health of aquatic ecosystems. Results indicate that some Fish Production Units (sub-watersheds) are continuing to recover from historic and more recent past management. Intermingled land ownership continues to impact recovery of some aquatic ecosystems. Fire suppression efforts (cutting of large woody debris jams) in the Mad River may effect the health of that particular aquatic system. Monitoring of habitat will be conducted in FY 1995 to follow up on possible impacts to the Mad River system.

Resident fishes are generally considered to be stable and well distributed, while anadromous stocks are effected primarily by off-Forest habitat conditions (e.g. mainstem Columbia). Irrigation systems and historic habitat impacts have also effected anadromous stocks.

Recommendation and Actions Include:

- a. Continue stream inventory program and begin re-survey of streams inventoried in the 1989-1991 period.
- b. Cooperate with Washington Department of Fish and Wildlife and U.S. Fish and Wildlife Service to conduct fish distribution and density surveys.
- c. Monitor large wood and substrate movements in the Mad River (level II inventory).

K. RANGE MANAGEMENT AND RELATED ACTIVITIES

Monitoring Item - FORAGE UTILIZATION

The goal is to provide opportunities to maintain and/or enhance desired plant communities and other resource values while permitting livestock grazing. The monitoring question is:

1. *Are the forage utilization levels consistent with goals for riparian and upland areas?*

In 1994, the grazing season was affected by extended hot, dry drought conditions in the mid to lower elevations. The key use grazing areas on the Forest at these mid to lower elevation zones were stressed due to summer temperatures and low soil moisture, resulting in a shortage of forage. The loss of range personnel and the drastically increased workload imposed by the 1994 fires limited the ability to monitor allotments. Due to the dry conditions and uncontrolled fire conditions, many permittees were asked to remove their livestock earlier than authorized in their permits for resource protection.

Grazing utilization monitoring was completed on six out of 22 active allotments. It was noted that elk use ranged from ten to 20 percent prior to the domestic livestock turn-on-date. In some cases administrative actions have already been implemented and in others continued monitoring will determine if grazing levels should be adjusted. Administrative actions taken include:

1. Completing four watershed analyses and starting four NEPA documents for seven permits that need re-issuance.
2. All annual grazing plans will include Forest Plan Standards and be reviewed by the permittees prior to the grazing season.
3. Conversion of cattle to sheep to protect riparian and wet meadows on one allotment.
4. Requiring permittees to remove their livestock early from six grazing allotments.
5. Temporary closure on one allotment for resource protection; allotment was involved in 1994 fires.
6. Closing two pastures and reducing numbers from 88 head to 52 head.
7. Resting one area for four years to facilitate the watershed improvements completed in Mitchell Creek during 1991 and 1992.
8. Actual use was reduced on one allotment from 529 permitted livestock to 200. Further reductions in late summer/fall use may be necessary to protect riparian vegetation.
9. One permit waived to Forest Service will not be reallocated until allotment conditions improve.
10. On one District, trespass is a reoccurring problem. A local U.S. Attorney has taken a stand to drastically increase penalties in the future.

RANGE MANAGEMENT AND RELATED ACTIVITIES

On two sheep allotments it was noted that grazing areas were within Standards, but some bed-grounds exceeded Standards allowable.

Recommendations and Actions Include:

- a. Continue to monitor allotments, and if necessary take administrative action so livestock grazing is in compliance with Forest Plan Standards and Guidelines.

L. ROAD MANAGEMENT

Monitoring Item - ROAD CONSTRUCTION/RECONSTRUCTION

The goal is to ensure that the transportation system is being constructed/reconstructed to serve the planned resource management objectives at the assumed annual rates. Monitoring team reviews selected projects in the field. Miles are reported in MARS and Road Accomplishment reports.

Roads are to be designed as safe and durable structures suitable for their intended uses. Within the Riparian-Aquatic Habitat Protection Zone, there are 11 Management Practices intended to minimize the amount of roads and their impacts. The Threshold of Variability for the road miles is 25 percent of the annual projections and ten percent for the decade. Additional Standards and Guidelines are contained in the President's Forest Plan.

Unit of Measure	Forest Plan Decade Average	FY 94 Actual
Forest Road Program		
Construction Miles	2	0.0
Reconstruction Miles	16	598.3
Timber Purchaser		
Construction Miles	80	0.9
Reconstruction Miles	3	0.3

The road activity this year was dominated by efforts to implement the President's Forest Plan and to reduce the effects of the extensive forest fires of 1994 on soil and water resources. Approximately 175 miles of roads were reconstructed as part of the "jobs in the woods" program. All of this reconstruction was intended to correct or mitigate the negative effects of roads. More than 400 miles of road were reconstructed with the purpose of reducing the effects of the flooding that occurs following fires. The majority of the work in both areas included improvements in drainage, surfacing, and revegetation of fill and cut slopes. There was no net increase of roads in key watersheds or any new roads in roadless areas. These were additional items required to be monitored by the President's Forest Plan.

Forest Road Program: The estimated average annual output for Arterial and Collector road construction and reconstruction is 18 miles per year. The actual accomplishment for FY 1994 was nearly 600 miles. This represents more than 300 percent of the target and is well outside of the 25 percent annual Threshold of

Variability. The original estimates were based upon the historical amount of funds available for this purpose and did not anticipate the "jobs in the woods" program or the extensive damage from forest fires.

Timber Purchaser: The estimated average annual output for Timber Purchaser Road Construction is 83 miles. The actual accomplishment for FY 93 was 1.2 miles. This represents 1.4 percent of the projected output. The amount of road construction and reconstruction by Timber Purchasers is entirely dependent upon the amount and location of the timber contracted for harvesting. Failure to reach the estimated output was caused by court injunctions related to the controversy over the northern spotted owl. The assumption that this system will be completed in the first 18 years of the plan is not valid. Over the next few years the amount of Timber Purchaser road construction and reconstruction will depend upon the location and rate of the recovery efforts in burned areas.

Recommendations and Actions Include:

- a. No further action is needed at this time. Monitoring indicates management direction is being achieved, continue current course.

Monitoring Item - ROAD MAINTENANCE

The goal is to ensure that the transportation system is being maintained to the appropriate Standard to serve the planned resource management objectives.

Unit of Measure	Forest Plan Decade Average	FY 94 Actual
Roads Maintained for: Passenger Cars Miles	1031	998
High Clearance Vehicles Miles	3202	3152

Given that thousands of decisions for the maintenance of individual roads are made on the ground with consideration for a number of annual and seasonal factors (condition, surface type, weather, traffic, mix, volume...etc), we do not consider this variability from the Forest Plan estimates to be significant on an annual basis.

We are just beginning to experience the effects of the loss of the maintenance performed by Timber Purchasers. In the past, the Purchasers have performed approximately 1-1.5 million dollars of maintenance annually, if we are unable to increase our appropriated (NFRD) road maintenance funds there could be a signifi-

cant reduction in the amount of the Forest available to the public and a reduction in level of comfort and ease of access. This year, 69 percent of the roads were not maintained to Standard.

Recommendations and Actions Include:

- a. Due to the uncertainty about future funding and harvest levels, it is premature to make assumptions about revised maintenance levels; however, it is logical to assume that should maintenance funds continue to decrease, more roads will be closed to public use.

Monitoring Item - ROADS CLOSED/OBLITERATED

The goal is to determine how much of the transportation system is no longer needed for management activities. Short and long term needs are to be considered. Roads can be closed and placed in Maintenance Level I or obliterated and removed from the transportation system inventory.

The Forest Plan Standard is that unless there is a resource need documented in the project analysis, currently open roads will remain open and newly constructed roads will be closed to public access by vehicle.

Unit of Measure	Forest Plan Decade Average	FY 94 Actual
Roads Closed Total System Miles	1703	940
Roads Obliterated Miles	NA	15

The Forest has obliterated approximately 445 miles of road in the past four years. The great majority of those roads were previously closed to the public, and therefore there has been a decrease in the total miles of road and the miles of closed road.

The Forest in continuing a comprehensive process of access and travel management and this year will undertake a intensive watershed analysis process that is likely to identify additional roads to be closed or obliterated.

Recommendations and Actions Include:

- a. Additional yearly information needed. Due to the uncertainty about the future, it would be premature to make new assumptions for the purpose of estimating new outputs.

M. INSECT AND DISEASE

Monitoring Item - INSECT AND DISEASE CONTROL

The goal is to assure that management practices do not contribute to increases in the incidence of destructive insects and diseases such as spruce budworm, tussock moth, pine beetle mistletoe, root rots, and others. The monitoring question is:

1. Are destructive insect and disease organisms remaining below potentially damaging levels following management activities?

A survey was conducted during the summer of 1994 by the Forest Insect and Disease (FID) staff of the Pacific Northwest Region. Copies of the survey were given to the Forest and each Ranger District, along with technical report "Forest Insect and Disease Conditions, Pacific Northwest Region, 1994".

The survey was conducted by air, and represents current Insect and Disease conditions across the landscapes on the Wenatchee National Forest. The survey indicates that defoliation by Western spruce budworm is at low levels. Mortality associated with Mountain pine beetle was down in all host types. Western pine beetle actively decreased in acreage throughout most of the region in 1994 in both pole-size and large ponderosa pines. This insect will continue to pose a high risk for mortality due to over stocked pole stands in the dry forest of ponderosa pine and Douglas fir that exist on the Wenatchee. This component is being actively managed to reduce densities to help decrease risks to insect and disease.

Another area being monitored is associated with root diseases. In general, east of the Cascades stands in late-successional stages with high proportions of shade tolerant species and histories of multiple stand entries have the highest levels of activity. These areas are being treated to reduce the spread of root diseases by planting species that are more tolerant to root diseases, such as western larch and ponderosa pine.

Recommendations and Actions Include:

- a. Additional study and information is needed before action is taken.

N. FOREST FIRE PROTECTION

Monitoring Item - FOREST FIRE PROTECTION

The goal is to provide protection from wildfire for forest users, facilities, and forest resources in an efficient manner. The monitoring questions include:

- 1. *Are implemented fire suppression strategies adequately protecting the public, facilities, and forest resources?***
- 2. *Are costs of protection in line with those projected by the National Fire Management Analysis System?***

The fire season for 1994 was affected by unusual weather patterns. The winter of 1993-1994 was very dry. Snow packs at higher elevations were minimal and rainfall in the lower portions of the Forest was substantially below normal. By April, fuels in the lower elevations were beginning to dry. Small escaped debris burns on private lands and wildfires from other sources began to occur about one month ahead of normal.

In late June, lightning fires occurred that burned more intensely than is normal for that time of year. The Warner Complex and Tommy Creek fire both required mobilization of local overhead teams. In early July, the Williams Canyon fire on DNR protected lands occurred due to a downed powerline. The fire threatened several structures in its initial run, but most significantly spotted across the Wenatchee River, a distance in excess of 3/4 of a mile.

On July 11, a 60 acre fire occurred in the Twenty-five Mile Creek drainage of the Chelan Ranger District. On July 14, a lightning strike started the Red Butte Fire, also on the Chelan Ranger District. This fire burned in extremely rough country and was contained at 115 acres.

On July 24th, a lightning storm occurred across the Wenatchee National Forest, and over 40 fires were reported. The next several weeks saw massive mobilization of resources from around the State and Nation. Structural engines were utilized in and around the communities of Leavenworth, Chelan, and the Entiat Valley. Two divisions of marines from Camp Pendleton, the Washington National Guard, and an army Chinook/Blackhawk helicopter contingent from Fort Lewis were also mobilized.

For the year, the Forest had 180 fires. Lightning accounted for 108 and the remaining 72 were human caused. Total National Forest acres burned equalled 157,841 acres.

Continued emphasis was placed on developing interagency programs to improve the efficiency of our Fire Management Program. The Forest continued to participate in the Central Washington Interagency Communication Center (CWICC), to staff fire suppression engines, and to develop Overhead Teams in partnership with the State of Washington Department of Natural Resources. Participation of local fire districts in the staffing of the Initial Attack Fire Engines also occurred.

Fire suppression resources assisted many other agencies on many fires across the State of Washington and throughout the western United States. The Forest continued to host several fire suppression resources intended for use Nationally. These include an Interagency Hotshot Firefighter Crew based at the Entiat Ranger District, a helicopter crew with rappelling capability based at the Chelan Ranger District, and two large Air Tankers, one Lead Plane, and one medium helicopter stationed at the Wenatchee Tanker Base at Pangborn Field. A large cache of fire suppression equipment is also housed at the Pangborn facility.

Appropriate fire management training continues to be an emphasis item for the Forest. Managers continue to organize for each fire season by providing advanced training and encouraging employees to participate on Type I and Type II Overhead Teams. All employees available for fire suppression receive appropriate initial attack training.

In addition to the fire suppression program, strong programs were maintained in fire detection and prevention. These activities are viewed as essential elements of the Fire Management Program. The number of human caused fires is a concern to the managers of the Forest. Many of these fires occurred in the fall during the various hunting seasons and suggests that a review of management procedures during this period is appropriate.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - USE OF PRESCRIBED FIRE

The goal is to provide appropriate, efficient application of prescribed fire in support of the Forest Management Program. The monitoring questions include:

- 1. *Are the acres being treated with prescribed fire meeting expected resource management objectives?***
- 2. *Are Forest fuel loadings exceeding natural levels and therefore, placing Forest users, improvements, and/or resource values at risk?***

The use of fire as a tool to manage unwanted vegetation and debris, and to prepare areas for the planting of new trees, continued to be a significant portion of the work for Forest personnel. During FY 1994, 2,687 acres were treated with prescribed fire. An additional 374 acres were treated using a chipper.

The dry weather and resulting early fire season limited prescribed fire activity in the spring. No Prescribed Natural Fires (PNFs) were allowed during the summer of 1994. The regional guidelines for allowing PNFs were exceeded prior to any candidate ignitions.

Recommendations and Actions Include:

- a. Many scientists and members of the public are becoming increasingly concerned about the ecological effects of the exclusion of fire from forest ecosystems. There is a need to gather additional specific information.

O. AIR RESOURCE MANAGEMENT

Monitoring Item - AIR RESOURCE MANAGEMENT

The goal is to maintain air quality in conjunction with all cooperating agencies. The monitoring questions include:

- 1. Are the impacts on air quality being considered in the management activities being proposed?***
- 2. Is the Forest in compliance with direction outlined in the Clean Air Act, the Washington State Implementation Plan, and National Forest Policy?***

Good visibility is an important value for visitors to remote areas of Washington. The Federal Clean Air Act assigns Federal Land Managers the task of protecting visibility in selected wilderness areas and National Parks (Class I areas). In 1993, a sophisticated visibility monitoring system was installed at Snowqualmie Pass because of its proximity to the Alpine Lake Wilderness to monitor visibility-impairing particles and determine likely sources of this air pollution. The site is serviced once a week throughout the year by Wenatchee National Forest employees. The Alpine Lakes site is one of a network of six sites in the Northwest. Preliminary results from the monitoring show that Alpine Lakes visibility has better than average visibility when compared to other Class I areas in the Nation, although the area does experience frequent uniform haze events. When a more extensive data set of air chemistry information is compiled from the site, a chemical mass balance technique will be employed to identify likely sources of the air pollution.

All Districts continue to improve their techniques and documentation for the inclusion of Air Resource Management considerations in environmental documents. These efforts should prove to be effective as the plans are implemented in future years.

The Forest continued to work with other State and Federal agencies to improve the quality of air in Eastern Washington. There were on-going efforts with the Washington State Department of Ecology and the Yakima County Clean Air Authority to lower the particulate levels in the Yakima Valley. The Forest also continued to comply with the direction issued by the Washington State Department of Natural Resources (DNR) for the management of smoke emitted from prescribed fires.

The Wenatchee National Forest is also a member and supporter of the "Wenatchee Valley Clean Air Coalition", with primary objectives including:

AIR RESOURCE MANAGEMENT

1. Educating the public on Air Quality Objectives.
2. Improving air quality in the Wenatchee Valley.
3. Data collection and information sharing.

Recommendations and Actions

- a. No additional action is necessary except to continue monitoring as scheduled.

P. MINERALS

Monitoring Item - MINING SITE RECLAMATION

The goal is to ensure that disturbed lands are reclaimed to a use consistent with the rehabilitation Standards and Guidelines.

Based upon information from the Districts, the monitoring that was done in 1994 indicates results similar to those reported in 1993. In summary, it indicates that approximately 50 acres were disturbed by mining-related activities on the Forest. Of this, 25 to 35 acres (50 to 70 percent) were satisfactorily reclaimed and met our reclamation objectives. The remaining 30 to 50 percent was not reclaimed due to continuing operations or the operators have been told to bring the reclamation into compliance.

Number of Plans of Operations and Notices of Intent, permits, etc.	135
Number and percent monitored	75 (55 percent)
Number of acres disturbed	50
Number of acres and percent reclaimed	25 to 35 (50 to 70 percent)

Due to the lack of Forest Plan level of funding, 100 percent of the reclamation efforts on the Forest were not monitored. Of those that were monitored, about 60 percent had been appropriately reclaimed. It is surmised that the remaining 40 percent has not been reclaimed because the operation is continuing or it has not been appropriately monitored due to the lack of funding. Adequate reclamation will either be conducted or reclamation bonds will be used to bring the reclamation up to Standard. It is assumed that similar results would be found on those operations that were not monitored.

Recommendations and Actions Include:

- a. Request Forest Plan level funding that will allow 100 percent monitoring of all mineral related activities.
- b. Additional monitoring should be conducted to ensure adequate reclamation is being completed.

The budget and organization were inadequate to allow monitoring at a 100 percent level, and until it is adequate the monitoring evaluation will not be conclusive. The objectives in the Plan appear to be adequate, and performance bonds and regulatory authority provide for compliance when that is not being achieved.

Monitoring Item - MINING OPERATING PLANS

The goal is to ensure that mining operations meet Forest Management Goals and Management Area Standards and Guidelines.

The Districts indicate that approximately 135 Plans of Operations and Notices of Intent were processed this year. Of these, only 55 percent of the total number of operations were monitored. Based upon the monitoring that was done, it is estimated that approximately 50 acres were disturbed with 50 to 70 percent of that being adequately reclaimed. Eighty-two percent of those activities monitored were adequately meeting the objectives of the Forest Plan.

Number of Plans of Operations and Notices of Intent:	135
Number and percent monitored:	75 (55 percent)
Number and percent of those monitored in compliance:	60 (80 percent)

Due to the lack of Forest Plan level of funding, lack of available personnel and other priorities, monitoring could not be done on 100 percent of the operations. As a consequence, the actual percentage of operations meeting our objectives is not known. This will continue until funding is increased to the Forest Plan level. It is assumed that monitoring is being done on the larger, more environmentally sensitive operations; and similar results would be found on those operations that were not monitored.

Recommendations and Actions Include:

- a. Continue to request additional funding that allows 100 percent monitoring of all mineral related activities
- b. Based upon the monitoring that was completed, a Forest Plan adjustment is not necessary at this time.

The objectives and Standards and Guidelines in the Plan appear to be adequate, but the level of funding is inadequate to ensure 100 percent compliance.

Q. COMMUNITY EFFECTS AND RESOURCE BUDGETS

Monitoring Item - COMMUNITY EFFECTS

The goal is to provide local communities with a constant source of opportunity for the use of goods and services that provide for desired community growth. The Wenatchee National Forest Impact Area includes Chelan, Douglas, Kittitas, and Yakima Counties. The monitoring questions include:

- 1. Are payments to counties changing?***
- 2. Are local populations changing?***
- 3. Are local employment patterns changing?***
- 4. Are lifestyles, attitudes, beliefs, or values changing?***
- 5. Are Forest contributions to area forest products industries changing?***

This past year, 1994, marks the fifth year of Forest Plan implementation. In April of this year, the Wenatchee Forest Plan was amended by the President's Forest Plan. This Record of Decision was the result of President Clinton's Forest Conference. Its goal is to provide a balanced ecosystem approach to sustaining forest habitat and forest products.

1. Changes in Payment to Counties

The following are payment to counties from FY 1991 to FY 1994. By law, 25 percent of the revenues collected by the Forest Service from the use of National Forest system lands and resources are returned to the counties as a source of funds for schools and roads. In Washington State, half the funds (school portion) are redistributed throughout the State, while the road portion remains within the county.

Most of the receipts are the result of timber sales. The final payments were computed under a provision of the Interior and Related Agencies 1992 Appropriation Act. Section 316 of that Act provides for payments to states and counties of not less than 90 percent of the five year average of payments for Fiscal Years 1986-1990 for those National Forests affected by decisions on the northern spotted owl. This provision has delayed the effect of declining timber harvest revenues.

COMMUNITY EFFECTS AND RESOURCE BUDGETS

Payments to Counties

County	FY-91 Payment	FY-92 Payment	FY-93 Payment	FY-94 Payment	FY-94 Payment if based on Actual Receipts
Chelan	\$2,144,756.14	\$2,061,905.09	\$1,948,905.09	\$1,948,376.20	\$454,262.16
Douglas	\$2.99	\$2.86	\$2.70	\$2.70	\$0.63
Kittitas	\$885,707.05	\$790,851.86	\$731,547.75	\$731,499.24	\$187,351.30
Yakima	\$3,351,123.98	\$2,674,761.01	\$2,406,458.57	\$2,405,790.68	\$856,363.37
TOTAL	\$6,392,590.16	\$5,527,520.62	\$5,086,335.28	\$5,085,688.82	\$1,497,977.46

2. Change in Local Population

State population growth slowed during 1994. Growth in the Wenatchee Impact Area however, like eastern Washington in general, continued to see an increase in population growth. The State grew 2.43 percent between 1992 and 1993, and only 1.8 percent between 1993 and 1994. In contrast, the Wenatchee Impact Area grew 2.14 percent between 1992 and 1993, and 2.7 percent between 1993 and 1994. Spurred by rapid growth in Chelan and Yakima Counties, this is the fastest growth rate in the last ten years.

The Wenatchee Impact Area has grown rapidly in the last five years. The growth rate between 1990 and 1994 is twice that of the previous five years. Much of this growth is due to the State-wide shift in growth away from highly populated areas towards rural places. The growth rate of highly populated King County has slowed from 1.48 percent between 1992 and 1993 to .74 percent between 1993 and 1994. This is a sharp contrast to the rapid growth seen in the Wenatchee Impact Area. Net migration formed a large part of the population increase between 1990 and 1994 in Chelan, Douglas, and Kittitas Counties. Net migration formed 70 percent of the population increase in Chelan County between 1990 and 1994, 69 percent of the increase in Douglas County, and 87 percent of the increase in Kittitas County. In contrast, net migration was responsible for only 65 percent of the State's population increase during this same period. This trend is likely to continue as urban people are drawn to the high quality of life they perceive in rural communities.

COMMUNITY EFFECTS AND RESOURCE BUDGETS

Population Growth Rates

	1992-1993	1993-1994	1986-1990	1990-1994
Chelan County	2.56%	3.57%	5.83%	11.00%
Douglas County	2.15%	2.81%	6.87%	16.24%
Kittitas County	5.04%	1.71%	5.75%	11.13%
Yakima County	1.60%	2.59%	3.71%	7.03%
Wenatchee Impact Area	2.14%	2.59%	4.53%	8.91%
Washington State	2.43%	1.78%	9.06%	9.61%
King County	1.48%	0.74%	9.54%	6.12%

Components of Population Increase, 1990-1994

	Total Increase	Natural Increase	Natural Increase as % of Total	Net Migration	Net Migration as % of Total
Chelan County	5,750	1,713	30%	4,037	70%
Douglas County	3,095	953	31%	2,142	69%
Kittitas County	2,975	395	13%	2,580	87%
Yakima County	13,277	10,397	78%	2,880	22%
Washington State	467,737	163,126	35%	304,611	65%

Estimated Total Population, 1990-1994

	April, 1990	April, 1991	April, 1992	April, 1993	April, 1994
Chelan County	52,250	53,200	54,600	56,000	58,000
Douglas County	26,205	27,500	27,900	28,500	29,300
Kittitas County	26,725	27,400	27,800	29,200	29,700
Yakima County	188,823	190,500	193,900	197,000	202,100
Wenatchee Impact Area	293,600	298,600	304,200	310,700	319,100

COMMUNITY EFFECTS AND RESOURCE BUDGETS

3. Change in Local Employment Patterns

The most recent employment data available from Washington State Employment Securities is 1993. Washington State Employment Securities provides employment and wage data for firms, organizations, and individuals whose employees are covered by the Washington Security Act. Covered employment includes more than 85 percent of total employment in Washington. Beginning in 1990, small farms were included under coverage. Currently, all agricultural employees are covered, with the exception of students and family members.

The period 1992-1993 saw the continuation of an economy growing more rapidly in the Wenatchee Impact Area than in the State. Covered employment grew 3.02 percent between 1992 and 1993 in the Wenatchee Impact Area, while growing only 1.93 percent in Washington. Most of the job growth came in the construction, services, agricultural, and retail trade sectors. The negative growth in employment between 1990 and 1991 was the result of a poor agricultural year. Since then, covered employment growth in the Wenatchee Impact Area has outpaced that of the State.

Percent Change in Covered Employment from Previous Year

	1990-1991	1991-1992	1992-1993
Wenatchee Impact Area	-0.48%	3.78%	3.02%
Washington State	0.77%	2.07%	1.93%

Lumber and Wood Products Manufacturing, Paper and Allied Products Manufacturing, Eating and Drinking Establishments in the Retail Trade Sector, and Hotels and Other Lodging Places in the Service Sector are industries directly affected by Forest Service activities. The Wenatchee Impact Area showed growth in covered employment between 1992 and 1993 for the Lumber and Wood Products and Eating and Drinking Establishments industries. There was negative growth in covered employment in the other two industries. The Paper and Allied Products industry showed negative growth in the State as well.

COMMUNITY EFFECTS AND RESOURCE BUDGETS

Covered Employment in the Wenatchee Impact Area in Industries Affected by Forest Service Activities

Industry	1992	1993	% Change 1992-1993
Manufacturing: Lumber and Wood Products	2,041	2,089	2.35%
Manufacturing: Paper and Allied Products	707	684	-3.25%
Retail Trade: Eating & Drinking Establishments	8,074	8,295	2.74%
Services: Hotels and Other Lodging	1,723	1,698	-1.45%

The employment mix in the Wenatchee Impact Area has not changed much in the past few years. The major sectors of the economy include agriculture, retail trade, services, and government. Manufacturing and wholesale trade form less significant parts of the economy. Mining and Construction, Transportation and Public Utilities, Finance, Insurance, and Real Estate each contribute only three to four percent of covered employment.

By far the largest sector, agriculture, is important in all the Counties that make up the Wenatchee Impact Area. Fruit trees are the predominant crop in Chelan and Douglas Counties. Crops are more diversified in Yakima and Kittitas Counties and include hay, fruits, vegetables, and beef. Much of the wholesale trade, and transportation and public utilities sectors are dependent on agriculture, as their major commodities are agricultural products.

The retail trade and services sectors owe much of their success to tourism. A significant portion of the employment in these sectors includes industries impacted by tourists such as hotels and other lodging places, eating and drinking establishments, automotive dealers and service stations, and amusement and recreation services. Health and Social services contribute a considerable portion of the service sector as well.

The majority of the government employment stems from education, including local primary education and employment by Central Washington University in Ellensburg and various community colleges. Major manufacturing industries in the area include aluminum production, food processing, lumber and wood products, and printing and publishing.

Employment in the Wenatchee Impact Area is seasonal, since the economy relies so heavily on agriculture, retail trade, and services, all very seasonal industries. Since many workers do not hold full time jobs, the area has characteristically low wages and high unemployment rates. All the Counties in the area were considered distressed in 1993. Distressed counties are those with unemployment rates at least 20 percent higher than the State average for three consecutive years. In 1993, all the Counties had average wages considerably lower than the State average as well.

COMMUNITY EFFECTS AND RESOURCE BUDGETS

Employment by Sector in 1993

	Chelan County	Douglas County	Kittitas County	Yakima County	Wenatchee Imp. Area
Agriculture, Forestry, & Fisheries	7,260	2,857	825	20,395	31,337
Mining and Construction	1,595	272	284	2,923	5,074
Manufacturing	2,529	160	702	10,076	13,467
Transportation and Public Utilities	755	377	376	2,765	4,273
Wholesale Trade	2,152	274	312	7,333	10,071
Retail Trade	5,690	1,348	2,516	12,944	22,498
Finance, Insurance, and Real Estate	1,285	162	193	2,096	3,736
Services	5,731	986	1,710	16,784	25,211
Government	5,169	1,514	3,352	12,551	22,586
Total	32,166	7,950	10,270	87,867	138,253

1993 Wages for Covered Employment

	Total Wages	Average Wages
Chelan County	\$600,700,038	\$18,675
Douglas County	\$122,001,100	\$15,346
Kittitas County	\$181,103,778	\$17,634
Yakima County	\$1,563,255,818	\$17,791
Wenatchee Impact Area	\$2,467,060,734	\$17,844
Washington State	\$57,870,282,679	\$25,740

4. Changes in Lifestyles, Attitudes, Beliefs, or Values

The population of the Wenatchee Impact Area continued to grow in response to an increasing demand for country living and space. This was especially true in Kittitas County as people seemed more willing to commute over Snoqualmie pass to live in a rural area. Net migration in Kittitas County accounted for a great majority of the population increase in that County between 1990 and 1994. Much of the population increases in Chelan and Douglas Counties were also the result of migra-

COMMUNITY EFFECTS AND RESOURCE BUDGETS

tion. This in-migration brings a new dimension to the traditional values ingrained in the largely rural communities surrounding the Wenatchee National Forest.

Recently, the region has seen the emergence of Catron County-type ordinances (Catron is a county located in New Mexico). Chelan County recently passed such an ordinance that requires the examination of effects on the customs, culture, and economic stability of the County before proceeding with any project.

5. Changes in Forest Contribution to Forest Products Industry

The following table shows Forest Service harvest volume and volume sold:

Volume in Million Board Feet

Fiscal Year	Volume Harvested	Volume Sold
1987	221	160
1988	186	154
1989	197	76
1990	173	225
1991	136	44
1992	95	27
1993	58	20
1994	25	16

The volume sold in 1990 reflects the requirements of Section 318 of the Federal Budget Act. The significant drop in volume sold in 1991 is the result of court and agency decisions on the management of northern spotted owl habitat. Volume sold continued to drop through 1994 in response to the court and agency decisions on the management of northern spotted owl habitat and the development and adoption of the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl.

COMMUNITY EFFECTS AND RESOURCE BUDGETS

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

Monitoring Item - RESOURCE BUDGETS

The goal is to provide funding levels necessary to achieve outputs in the Forest Plan. The monitoring question is:

1. Are the budgets received adequate for achieving the objectives described and projected in the Forest Plan?

The following table reflects the program budgets on the Wenatchee National Forest since 1990. The budget request for 1993 represents the first budget that was developed using the Forest Plan. The 1994 budget reflects a change whereby the benefitting function pays for work done.

PROGRAM AREA	FISCAL YEAR 1991	FISCAL YEAR 1992	FISCAL YEAR 1993	FISCAL YEAR 1994
Recreation	\$ 3,027,000	\$ 3,739,000	\$ 4,535,035	\$ 3,428,690
Fisheries	\$ 520,000	\$ 956,000	\$ 1,381,889	\$ 761,487
Threatened & Endangered Species	\$ 244,000	\$ 255,000	\$ 175,908	\$ 317,008
Wildlife	\$ 244,000	\$ 279,000	\$ 156,329	\$ 206,614
Range	\$ 198,000	\$ 149,000	\$ 276,630	\$ 254,533
Timber	\$ 7,944,000	\$ 7,096,000	\$ 5,423,457	\$ 5,420,986
Other Resource Support to Timber	\$ 973,000	\$ 1,326,000	\$ 1,077,171	\$ 709,364
Watershed & Air	\$ 1,772,000	\$ 1,075,000	\$ 885,223	\$ 2,938,457
Minerals & Geology	\$ 188,000	\$ 161,000	\$ 240,104	\$ 203,359
Lands	\$ 1,257,000	\$ 4,347,000	\$ 4,328,440	\$ 901,096
Facilities & Transportation	\$ 5,005,000	\$ 6,200,000	\$ 3,999,503	\$ 3,854,485
Protection, State & Private Forestry	\$ 3,357,000	\$ 5,692,000	\$ 3,399,958	\$ 11,774,526 *
General Administration	\$ 2,691,000	\$ 4,372,000	\$ 2,419,543	\$ 2,332,846
Overhead Assessments	\$ 3,111,000	\$ 3,321,000	\$ 2,764,588	\$ 2,991,427
TOTAL EXPENDITURES	\$ 30,531,000	\$ 38,968,000	\$ 31,063,778	\$ 36,094,878

* FY94 figure includes \$7.8 million for emergency fire recovery

COMMUNITY EFFECTS AND RESOURCE BUDGETS

The budgets reflect emergency federal action and shifts in Congressional funding. For example, the large expenditure in Watershed and Air in 1990 reflects the cleanup and rehabilitation after the floods of 1990. The large expenditures in the Lands budget represents the land purchases in the Alpine Lakes Management Area.

The following table represents the Wenatchee National Forest's budget requests to implement the Forest Plan. The 1993 budget request is the first to be directly linked to the Forest Plan. Beginning last year, the Forest no longer completes outyear budget requests. The budget request for 1997 was completed by the Regional Office.

PROGRAM AREA	1993 BUDGET REQUEST	1994 BUDGET REQUEST	1995 BUDGET REQUEST	1996 BUDGET REQUEST
Recreation	\$ 6,371,000	\$ 6,421,000	\$ 7,082,000	\$ 5,073,000
Fisheries	\$ 612,000	\$ 527,000	\$ 1,268,000	\$ 1,483,000
Threatened & Endangered Species	\$ 858,000	\$ 797,000	\$ 1,349,000	\$ 1,668,000
Wildlife	\$ 749,000	\$ 668,000	\$ 1,132,000	\$ 1,453,000
Range	\$ 412,000	\$ 415,000	\$ 1,164,000	\$ 1,317,000
Timber	\$ 8,684,000	\$ 6,051,000	\$ 5,812,000	\$ 7,261,000
Other Resource Support to Timber	\$ 1,363,000	\$ 612,000	\$ 1,251,000	*
Watershed & Air	\$ 3,738,000	\$ 790,000	\$ 1,226,000	\$ 1,682,000
Minerals & Geology	\$ 398,000	\$ 398,000	\$ 566,000	\$ 1,373,000
Lands	\$ 986,000	\$ 708,000	\$ 1,000,000	\$ 1,449,000
Facilities & Transportation	\$ 9,121,000	\$ 6,652,000	\$ 6,990,000	\$ 5,970,000
Protection, State & Private Forestry	\$ 3,436,000	\$ 4,204,000	\$ 5,859,000	\$ 5,501,000
Ecosystem Management	—	—	—	\$ 1,676,000
General Administration	\$ 3,832,000	\$ 3,180,000	\$ 3,180,000	\$ 1,904,000
Overhead Assessments	\$ 4,489,000	\$ 4,218,000	\$ 3,870,000	\$ 3,480,000
TOTAL REQUESTS	\$ 42,049,000	\$ 35,641,000	\$ 41,749,000	\$ 41,290,000

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

R. GENERAL MONITORING OF STANDARDS AND GUIDELINES

Monitoring Item - STANDARD AND GUIDELINES GENERAL

The goal is to ensure implementation and validation of Forest Plan Standards and Guidelines. Monitoring seeks to assure Forest goals, outputs, and the desired future condition. The monitoring questions are:

- 1. Are Forest Plan Standards and Guidelines being implemented?***
- 2. Are implemented Standards and Guidelines achieving the expected results?***

In 1993, an Interdisciplinary Team consisting of the Forest Supervisor, Deputy Forest Supervisor, Forest Group Leaders, and others with specific expertise conducted reviews on each of the six Ranger Districts. The purpose of these reviews was to reveal how Ranger Districts were doing in implementing Forest Plan Standards and Guidelines.

Due to the fire season in 1994, the team did not meet last year to review this item. The monitoring report next year will address this issue.

Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

V. FOREST PLANNING UPDATE

A. Forest Plan Appeals

One appeal of the Wenatchee Forest Plan remains outstanding, that of the Columbia River Intertribal Fish Commission (CRITFC). The CRITFC appeal is identical to the one filed by the Yakama Indian Nation. However, as a result of a Memorandum of Understanding (MOU) executed between the Yakama Indian Nation and the Wenatchee National Forest which addressed the issues raised in their appeal of the Forest Plan, the Yakamas withdrew their appeal in January 1994. CRITFC also withdrew their appeal, based on the MOU with the Yakamas. A resolution of this appeal has not yet been reached.

B. Forest Plan Litigation

In 1992, a lawsuit was filed by Pilchuck Audubon Society which contended that the Forest Plans on the Wenatchee, Okanogan, and Colville National Forests failed to assess the environmental effects associated with forest health problems. Proceedings have since been removed from the court's active caseload until further application by the parties or order of the court.

C. Forest Plan Amendments

The Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl was signed on April 13, 1994. This decision amended the Wenatchee National Forest Plan. This amendment was implemented on May 20, 1994. Due to the wildfire situation during the summer of 1994, the monitoring accomplished only partially reflects the new management direction provided in the amendment. The new Standards and Guidelines will be monitored and presented fully in next year's report.

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